

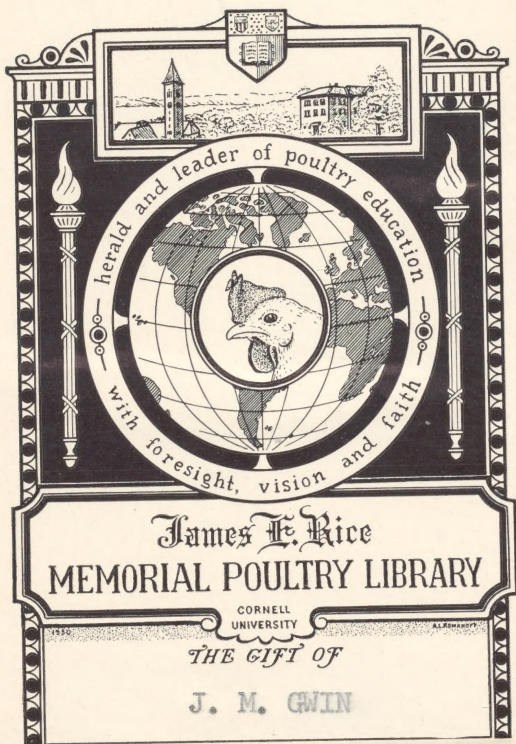
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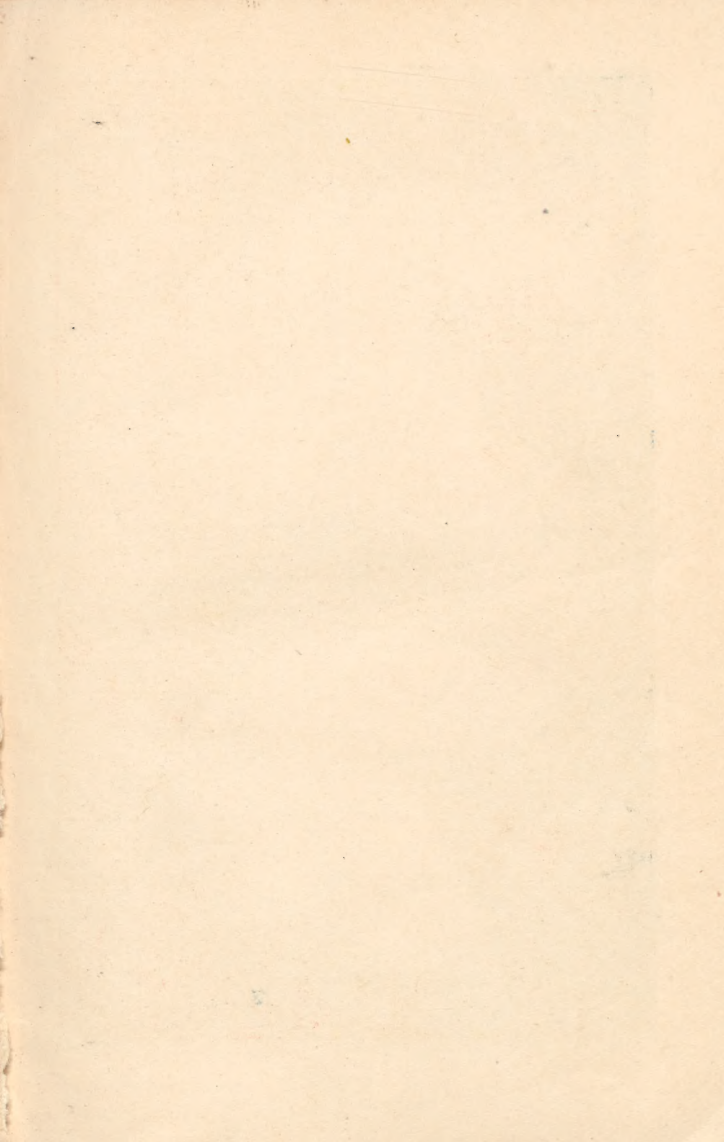
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THE HOBBY BOOKS

Edited by A. Williams

POULTRY-KEEPING

THE HISTORY OF
THE
COUNTRY OF
WILTSHIRE



WHITE
ORPINGTONS



A. Frydon

THE HOBBY BOOKS

Edited by ARCHIBALD WILLIAMS

POULTRY KEEPING

BY

MRS. E. COMYNS-LEWER

AND

SIDNEY H. LEWER

(EDITORS OF "THE FEATHERED WORLD")

WITH 8 COLOURED PLATES AND
94 SKETCHES AND DIAGRAMS

"THE FEATHERED WORLD"

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POULTRY-KEEPING.

Chapter I.

INTRODUCTION.

ALTHOUGH the keeping of poultry is undoubtedly on the increase in the British Isles, a great deal more remains to be done before any marked decrease in our egg and poultry imports will be discernible. For years past the editors of poultry papers and others interested in the subject have advocated that all tenants of land, even though the plot be but a small garden attached to a house, should invest in a few fowls and raise sufficient eggs for their own consumption.

That this can be done on quite small spaces has been proved by hundreds of backyarders, and the writers can also speak from personal experience of three pens of fowls, twenty-four in all, which have kept a large household in fresh eggs for the greater part of the year, and allowed a surplus to be put away

weekly into water-glass for consumption in the winter months, when their output was at its smallest.

Of course, to do this, poultry must be kept on a proper system, and that certainly is not to allow the birds to roam at their own sweet will, picking up what they can and drinking any foul water that they may happen to come across. Neither is it to throw food down for them whether they need it or not without system or regularity. Nor is it to keep them in houses where their sleeping quarters are seldom cleaned out, the droppings being allowed to accumulate for months before being taken away, and the whole place to become infested with insects.

This is not the poultry-keeping that will be advocated in the following chapters. We hope instead to be able to point out to readers how to keep their birds with profit and pleasure, so that they in turn may tell others, and thus enlarge the circle of poultry-keepers. It has been stated that we cannot hope to produce all the eggs that we require for home consumption and the many processes of manufacture for which they are now needed, but at least we can all do our share to keep in our own country some of the huge total of £8,394,524 paid in 1912 to the foreigner for eggs, and, moreover, in doing so ensure a fresher egg on our breakfast-tables.

A warning is perhaps advisable to those who contemplate poultry-keeping. Begin in a small way, and increase the head of stock carried as knowledge is gained. From experience as editors of *The Feathered*

World, we know how many people give up disheartened, because they start on too large a scale; and their experience not being equal to the task, the proper care of their fowls gets beyond them, and disaster follows.

Another point to remember is that well-bred stock costs no more to feed than mongrels; and that, though the initial outlay for pure breeds may be greater, when the surplus stock has to be disposed of the prices realized will be higher than for nondescripts. It is a mistaken idea, but yet one hard to kill, that the greater the mongrel the more profitable the fowl; and it cannot be too strongly urged that pure stock, or first crosses selected for a definite purpose, are both better to look at and more paying to keep.

Before closing this introductory note we wish to express our deep indebtedness to the poultry experts, and other contributors of *The Feathered World*, by whose writings we have profited in producing what we trust may prove a useful handbook to amateur poultry-keepers.

Chapter II.

HOUSES AND RUNS.

THE late Mr. A. Comyns, in his book "Poultry for the People," well says : " There are four primary necessities to ensure good laying. These are : first, good housing ; second, good feeding ; third, proper means of digestion ; and fourth, reasonable exercise."

Cheap Houses.—Into the details of poultry-house construction it is not necessary to go at length ; but instead we will furnish a few illustrations of cheap forms of houses, and leave readers to settle the details according to their individual circumstances. Good houses can be purchased at reasonable prices by those who desire to do so. They can be built even more cheaply by those who are handy enough to be able to use a saw, a hammer, and some nails, and have facilities for obtaining match-boardings at cheap rates ; and even those who are unfortunate in this respect can purchase large packing-cases, sugar-boxes, or something of that kind, which may, with little trouble or expense, be converted into a good house for a few birds. Still, on the principle that what is worth doing at all is worth doing well, we advise the poultry-

keeper to commence with a house that shall not be an eyesore to himself or his neighbours. Let it be neatly finished off, and for comfort's sake let it be one that can be entered for purposes of cleaning without excessive stooping.

Important Points.—Quoting again from Mr. Comyns, we will note a few primary rules which demand attention. In the first place, the roosting house

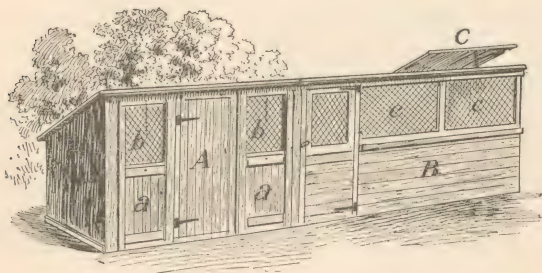


Fig. 1.—Combined sleeping-house (A) and scratching-shed (B). C, roof hinged to open; aperture covered with netting; *aa*, sliding shutters to cover *bb*. A screen, sliding in runners, may be used to cover *cc*.

must be suited to the number of birds kept. It may be taken as a rough rule that each bird should have at least ten cubic feet of air in the house. Working this out, we find that the smallest house for six fowls is four feet square and four feet high, while for twenty birds the house should be at least six feet square and six feet high. With such small dimensions as these, great attention to ventilation is necessary; but care

must be taken that ventilation is given without draught. This may most readily be secured by the use of two sheets of perforated zinc, with a space between each sheet over each ventilating opening. These openings should be placed as high as possible at each end of the house, so that the air comes in quite above the birds' heads, and becomes heated before it reaches them. It is well to provide the ventilators



Fig. 2.—Type of house which is very convenient where room is limited.

with a sliding shutter, so that the amount of air admitted may be regulated according to the temperature and the number of fowls in the house.

As this method may sound somewhat elaborate, we may add that we have found when the eaves of the poultry-house overhang, as it is well for them to do, a simple but efficacious system is to let the uprights at the back and front end about two inches short of the roof, thus giving ample space for the inlet of pure

air and egress of the fouler atmosphere. This subject, however, is now usually well dealt with by makers of poultry-houses, for the days of the stuffy, badly-ventilated fowlhouse are, we hope, over; and just as the open window to our own dwelling has become recognized as essential to health, so appliance makers

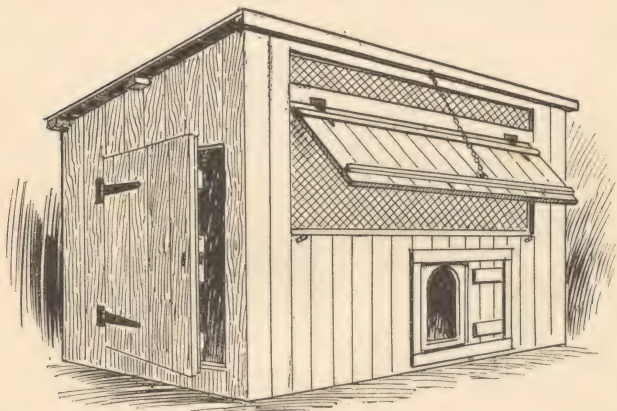


Fig. 3.—House for intensive or semi-intensive system (Tamlin).

give provision for ample fresh air to the up-to-date poultry-house.

Dryness.—Another requisite is that the roof of the house shall be thoroughly watertight. This is a point easily secured if felt be stretched over the boards and then well tarred. The floor should be also perfectly dry; and a help to this is to affix a rain-water gutter to the house with a pipe thereon, so that the

drippings from the eaves are carried away. Made floors, such as concrete and the like, except in unfavourable conditions as to drainage, we do not advise. If they are used, they should be covered to the depth of at least three inches with dry loose material of some kind, such as sand, ashes, or earth. Peat-moss litter used liberally is most suitable, and for backyard

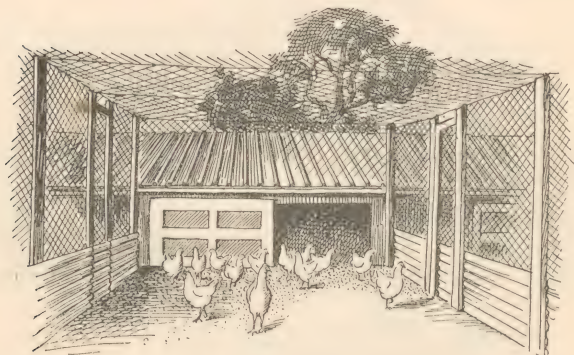


Fig. 4.—A well-arranged run with corrugated iron wind-screens at the sides.

runs, or where well-dried leaves, chaff, oat cavings, and similar materials cannot be obtained, it is by far the cheapest and best bedding in the long run. It is a splendid deodorizer, and if kept dry and spread to the depth of six inches in a house and run, turned over at intervals, and the droppings removed as far as possible, will keep sweet for nearly six months at a time.

Lighting.—Provision should be made for the house to be well lighted. A dark house is always insanitary and dirty. Many of the ready-made houses have very small windows ; it is much better to have the window too large than too small, for if necessary it can always be reduced by a shutter. Nest boxes are best kept fairly dark, and should be as simple in construction as possible. Personally we prefer them fixed outside the house, so as to avoid the necessity of going into it to collect the eggs. See that the entrances as well as the boxes themselves are large enough for the breed kept, and that they have a narrow rim of wood across the front of the nest, so as to keep the hay or broken straw used from being carried out by the hens. Nesting material should be frequently changed ; a sprinkling of insect powder will help to keep down pests.

Cleanliness.—The last requirement of the house which it is necessary to mention is, that it should be so constructed internally that all the fittings can be taken down and the interior of the house thoroughly cleaned. The free use of lime-wash will be found advantageous, and where creosote can be obtained this is still better as an insecticide and disinfectant.

Perches.—The perches should be placed not more than two feet from the ground, and all on one level ; or, if they be arranged over a shelf, that shelf should not be more than two feet from the ground, and the perch may be fixed within six inches of it. This plan of having a shelf or dropping board under the perch undoubtedly facilitates cleaning and makes the litter

last longer. The breasts of many young birds are rendered crooked by too narrow perches being used. They should be from two to three inches broad, according to the variety, and should be flat, with merely the sharp edges planed off.

For profitable poultry-keeping, so far as egg production is concerned, it is not desirable that the birds should be constantly at liberty; unless, indeed, the locality is such that they can obtain a large supply of insects, worms, etc., to compensate for the labour of searching for them.

Intensive Poultry-Keeping.

A great deal has been said lately about the "intensive" method, and judging from personal experience, we certainly think the system well worth adoption by those who have limited space and wish to keep poultry simply for the supply of eggs. Experience so far does not lead us to advise its adoption for stock birds intended for breeding purposes or for the raising of chickens other than those for table use. We may explain here that the "intensive" system entails the keeping of pens of fowls entirely confined, without outside runs. The secret of the success of this method is strict attention to cleanliness by the removal of all droppings, keeping the litter and floor dry, and giving the fowls constant exercise by burying their corn in the litter and literally forcing them to work for their living.

Special houses are on the market for this “intensive” branch of poultry-keeping; but it is not necessary to go to the expense of purchasing these, for existing houses and scratching-sheds can readily be adapted for the purpose. The house we have found the most successful for an ordinary garden is a roosting-

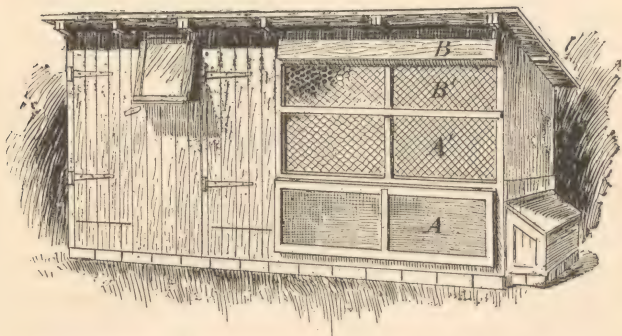


Fig. 5.—Poultry house for intensive system. A, canvas-covered screen which can be folded upwards to cover A¹ and keep out wind and rain. To back of A is hinged another screen to cover B¹. B, projecting eaves. A space of two inches is left between the roof and the house at the back and front.

house with a scratching-shed attached. (Fig. 1.) This last may be either underneath the sleeping-house (the birds in this case going upstairs to bed) or alongside; personally we prefer the latter position for the birds' day quarters. Strictly speaking, this is not the pure “intensive” system: in that the fowls have but one compartment, the perches with board to catch

the droppings being removed during the day, and the roosting-house and scratching-shed being thus combined in one.

After trying both types, we recommend, if space permits, the two-compartment method; but whichever plan is adopted, the floor must be covered deeply with *dry* litter—peat-moss, chaff, dry earth or sand, straw, or any like material available. The true “intensive” house has a wooden floor, which we think for small lots is only advisable if the subsoil be damp, and even then concrete or asphalt is preferable, as wood is absorbent. Where there is good drainage, and the ground beneath the house can be periodically dug out and fresh dry soil supplied, we found our birds did better without boarded floors. Floors, however, where large numbers of fowls are kept and labour is an item to be watched, may be necessary; but the home poultry-keeper with only a pen or two of birds to look after, under favourable conditions can dispense with them, and his birds will delight in scratching down deeply into the natural soil, and a smaller amount of litter will be necessary. Dryness, however, we repeat, is essential to prevent disease; for the conditions are artificial, and nothing but scrupulous care will keep birds in such close confinement healthy.

Dropping Boards.—A great aid to cleanliness is the use of dropping-boards beneath the roosting perches, for much of the fowls’ manure is voided at night. A good plan is to have the board and perch in one, raising the latter a few inches above the board and

seeing that this is wide enough to catch the droppings that fall. (Fig. 6.) The board and perch should be removed every morning, scraped and cleaned, and dry earth and litter be put under the perches so as to ab-



Fig. 6.—Perch and Removable Droppings Tray.

sorb the moisture before being replaced at night. The manure collected should be kept under cover, and if mixed with dry earth and periodically turned over will make a valuable top-dressing in the spring for a lawn, or be useful for the garden beds.

The food for fowls kept under such confined condition should in the morning be hard corn (preferably oats) well raked into the litter, allowing a handful to each bird; at midday, green-food, in the shape of lettuce, cabbage, mangolds, turnips, etc., hung up, and all stale pieces carefully removed later; and at night, soft food in the shape of scalded biscuit meal, boiled oats or wheat, as much as the birds will eat readily, except in warm weather or if the birds show signs of becoming too fat, when oats should take the place of the soft food. Of course, grit and oyster shell should be supplied, and the water be changed

frequently. A trough filled with bran is usually left in most intensive houses for the birds to feed from at will. Provided these directions are properly carried out, and a good strain of March or April hatched pullets secured, fresh eggs should be forthcoming even in winter. Under the conditions given, eight White Wyandottes (one of which died early in the year) gave the writers over one thousand two hundred eggs in twelve months. This breed and White Leghorns are two of the best for intensive poultry-keeping.

Free Range.

Poultry-keepers with more space at command have a wide choice of suitable houses, but the essentials remain the same, and we strongly advise the presence of a scratching-shed in all cases as a refuge for the fowls in bad weather.

In these houses, as already mentioned, the nest-boxes should be placed outside, and so made that the eggs can be taken without entering the house. The door for cleaning purposes can be placed where convenient, but the window is best away from the nest-boxes, so as to make them as dark as possible. The scratching-shed should be boarded on three sides; the fourth (which should face the south), except for skirting boards, should be of galvanized wire-netting, with a curtain of coarse calico fitted thereto, which can be let down on very wet or cold days. A sliding shutter of a coarse canvas material is very serviceable

in this respect, and it is not a bad plan for half the top of the scratching-shed to be made to fold back, wire-netting being stretched beneath it, so that the birds have plenty of fresh air and the shed thus gets ample top ventilation on a fine day.

As it is of the greatest importance that the litter in the house and scratching-shed be kept dry, care must be taken that the surroundings are well drained, and

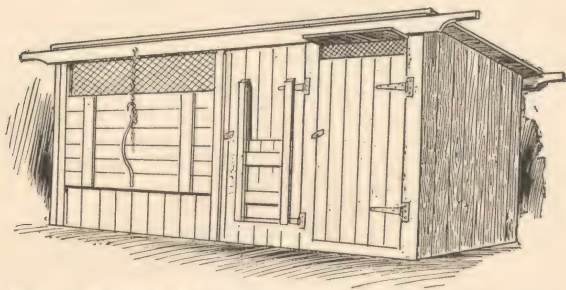


Fig. 7.—Tamlin's "Jack of all Work," useful as a brooder, cockerel pen, colony house, etc.

driving rains and snow kept out by overhanging eaves or shutters. A useful sized scratching-shed to accommodate a pen of nine birds is one with a floor space of ten feet by six feet.

The poultry-house and fittings should be thoroughly washed down once a year at least; more often, if possible. One of the best ways of ridding a house of all insects is to give it a good coating, inside and out, of creosote, which can usually be obtained from the local gasworks. It should be applied thoroughly with

a brush that will work into all crevices and cracks. Besides killing insects, creosote also acts as a capital preservative of wood. After the operation the house must be left untenanted for a few days until dry.

Another method is to close up all apertures of the house as far as possible, and then put in a shovelful of live coals upon two bricks and sprinkle a handful of flowers of sulphur over them. This also acts as an insecticide. After sufficient fumigation the house may be whitewashed, a little carbolic being added to the lime when mixing it. The fowls are replaced as soon as the house is dry.



Chapter III.

WHAT BREEDS TO KEEP.

AMONGST the constantly repeated questions asked us as editors of *The Feathered World*, perhaps none is so frequently answered in its columns as "Which is the best breed for laying?" Having dealt with housing, and to a certain extent with the elementary principles of feeding and management, it is well to face this difficulty at once.

Value of a Good Strain.—To start with, the poultry-keeper must grasp the fundamental principle that laying is not so much a question of breed as it is one of strain, or, perhaps, to make it plainer, of particular families of a breed; for there are good and bad layers in all breeds, quite apart from the important points of management and feeding which in turn have much to do with the same question.

To the average poultry-keeper we advise the selection of a pure breed; for, as with other classes of live stock, it is always well to have something that we can be proud of showing to our friends, and whilst first crosses have their merits for specific purposes, the number of really useful breeds now available



- | | | | |
|------------------|------------------|---------------|------------|
| 1 Comb. (single) | 7 Back. | 13 Wing Bow | 19 Hocks. |
| 2 Face | 8 Saddle | 14 Wing Bar. | 20 Shanks. |
| 3 Wattles. | 9 Saddle Hackle. | 15 Wing Bay. | 21 Spur |
| 4 Ear-lobe. | 10 Sickles. | 16 Wing Butt. | 22 Toes. |
| 5 Neck-Hackle. | 11 Tail Coverts. | 17 Flight. | |
| 6 Breast | 12 Tail Quills | 18 Thighs. | |

Fig. 8.—The Points of a Fowl.

for selection makes the presence of a crossbred—and still more of a mongrel—in the average poultry-yard both unnecessary and unsightly.

Pure Breeds.

Writing on the subject of selection of pure breeds, Mr. Comyns in his book gives the sound advice that the poultry-keeper generally cannot do better than be guided in his choice by the popularity of certain breeds in his own district. Although, thanks to greater knowledge of poultry-keeping, useful breeds have now become more widely distributed, it is not long since it was found, for example, that in the south-western counties Minorcas were much more largely kept than any other variety, and reputed to be the best layers. In Derbyshire, Redcaps are very popular. Farther north, in Yorkshire and Lancashire, Hamburghs were and still are very numerous, and provided they be not too finely bred, undoubtedly give very good results in laying, besides being about the most handsome of fowls. A little farther north Minorcas are again in favour, while over the Border Scotch Greys are popular. Other breeds which have a deservedly widespread popularity are Plymouth Rocks, Langshans, Wyandottes, Leghorns, the many varieties of Orpingtons, Rhode Island Reds, Campines, and Anconas. Any of the breeds which we have named can produce first-rate layers ; the one which has been



Fig. 9.—Points of Poultry: Combs.

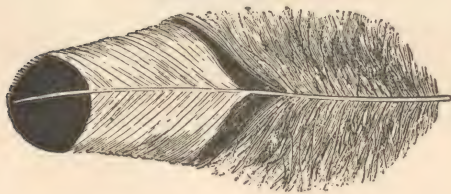
1, Leghorn pullet; 2, Leghorn cockerel; 3, Rosecomb; 4, Leaf comb (Houdan); 5, Minorca cockerel; 6, La Flèche; 7, Malay cock; 8, Redcap cock; 9, Wyandotte cock; 10, Dorking cock; 11, Pea or Triple comb (Brahma).

found to do the best in your own neighbourhood is the best to begin with.

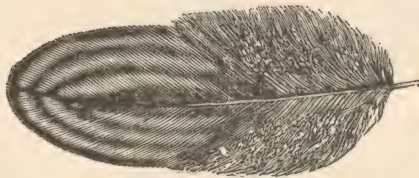
The *non-sitting varieties*, such as the Mediterranean breeds, produce on the whole a larger number of eggs; but some of the *sitting breeds*, such as Orpingtons, Wyandottes, and Rocks, excel them in the matter of winter laying. Again, a tinted or brown egg is much preferred by some people, but this cannot be got from a non-sitting variety, which, moreover, does not usually make as good table poultry.

Another point to be considered in the selection of a breed is, whether it be intended to rear chickens or not. If chickens are to be reared without artificial incubation, some birds of a sitting variety must be kept. A reference to the particulars given in the chapter on breeds will doubtless assist in a choice in this respect.

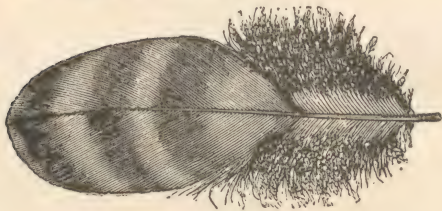
The conditions under which the fowls are kept will also guide the choice: some breeds are more suitable for close confinement than others; some will withstand a damp soil better than others, and very frequently a poultry-keeper will succeed better with the fowl of his own particular fancy than with a breed recommended to him. It may be helpful to remind him, if unbiassed, that, as layers, White or Black Leghorns, Andalusians, Minorcas, Campines, and Anconas, and, as general utility fowls, Faverolles, Orpingtons, Wyandottes (especially the white), Rocks, Sussex, and Rhode Island Reds are well worth consideration.



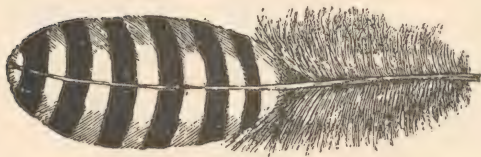
Spangling.



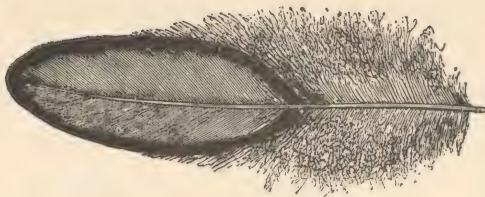
Pencilling
(Brahma).



Barring or
Cuckoo Marking.



Pencilling
(Hamburgh).



Lacing.

Fig. 10.—Various Types of Feathers.

Advantageous Crosses.

Some people, however, prefer crossbred birds, as they have an idea—quite erroneous—that these are better layers than pure-bred stock. It may therefore be well to suggest a few useful crosses. For confinement as layers a good cross is that between a Minorca cock and Langshan or Rock hens. A Leghorn can be used instead of the Minorca, but the result is not as good for table. A Redcap or a loosely-bred spangled Hamburgh, or a black Hamburgh cock may be also substituted for the Minorca; and very good results have been obtained from a cross between a Houdan cock and hens of the heavier varieties. Brahma and even Cochin hens can, with advantage, be used for crossing for winter laying; but they should be bred from birds specially selected for laying, which are not always easy to obtain in these varieties. Where the birds are less confined as to space, crosses between two of the non-sitting varieties—such as Minorcas and Redcaps, or Leghorns and Houdans, or even Hamburghs and Spanish—have been found to give capital results, both as to size and to number of eggs. Other useful crosses cited are Minorca or Leghorn cock with Wyandotte; Houdan cock with Minorcas, Leghorns, or Orpingtons; Leghorn cock with Orpingtons; and Campine cock with Wyandottes.

Where it is difficult to procure birds of a fresh first-cross every season, it is by no means a bad plan to

cross back alternately to each pure breed. For example, if the first cross be Minorca-Langshan, use alternately a Minorca and a Langshan cock. Never when crossing use a crossbred cock. Never breed from the progeny of crossbred pullets or hens, or the result will be mongrels of the worst description. Writing on this point, the authority already quoted says :—

“ I by no means recommend poultry-keepers to rely upon this effect of crossing solely to produce good layers. They should endeavour to breed from parents on each side which are of as good a laying family as can be obtained. It is only in this way that first-rate laying results can be got ; and if this method be followed, if breeding for laying purposes be conducted on lines similar to breeding for feather properties as adopted by fanciers, the laying qualities of the laying breeds can be kept up without any cross-breeding—nay, may be made to excel many injudicious or carelessly managed crosses.”

It is to be noted that crossbred birds, even if bred from non-sitting varieties on each side, often turn out to be sitters. This, again, is an instance of reversion to the original habits of the parent breeds, as there can be no doubt that all varieties of the domestic fowl were originally sitters.

The Trap-Nest and Laying Strains.

Use of the Trap-Nest.—Stress has been laid upon the fact that fowls only of a good laying strain should



SPECKLED SUSSEX

be used, and the question may be asked, "How can this be discovered?" It is obviously impossible to stand and watch your hens all day to see which lay, and so an ingenious device in the shape of the trap-nest solves the difficulty. From the sketches (Fig. 11) given of this appliance its working can be seen, and it is by this means that reliable statistics have been arrived at of egg-laying strains. As the hen enters the

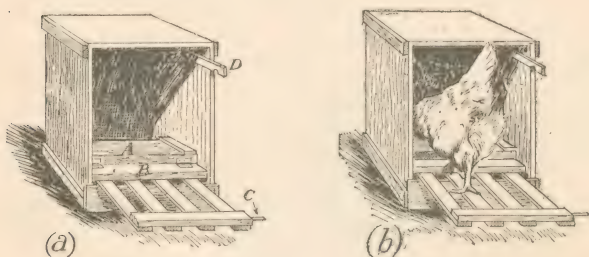


Fig. 11.—A trap-nest. (a) Bar A is pivoted at the back and hinged to B, which is pivoted near the front. To reach the nest, the hen has (b) to step on to A, so causing the grid to fly up and spike C to engage with catch D.

nest her weight releases a door, which closes behind her so that she is kept a prisoner until let out after laying. Where trap-nests are used, each hen should wear either a numbered or coloured ring; and when released the egg laid would be recorded to her credit on a ruled card or egg-recording sheet, which should be fastened up inside the house. In this way, at the end

of each year, a glance will show which hens have laid well and which have been failures. The latter should, of course, be weeded out and replaced ; and if chickens are to be raised in the following season they should be bred from the successful hens, mated to a cockerel from a proved egg-laying strain—for this is of equal importance.

In the poultry papers birds and eggs are sometimes offered as bred from a particular egg strain prefixed by a number which indicates the total of eggs laid in a year by the parent hen, or, as is sometimes the case, the average of the flock. This subject of egg-laying has had greater attention paid to it during the last few years, and a debt of gratitude is due to certain utility breeders for having worked patiently at weeding out their useless birds so as to build up reliable strains of layers, and thus give us all a chance of securing a better egg average from our fowls.

Renewing Stock.

A point frequently overlooked by poultry-keepers is the necessity for killing off some old hens each year and filling their places with pullets. Three laying seasons is the longest time for which even a really good layer should be kept, unless she be selected for breeding from. In that case, she may be kept another year or two. Kill off, or otherwise dispose of, at least one-third of the hens each year, and fill their places with pullets. All birds should

be marked, so that their ages, family history, and laying qualities can be readily known. Plenty of coloured and numbered rings for this purpose are procurable, so that there can be no difficulty in the matter.



Chapter IV.

BREEDS AND THEIR CHARACTERISTICS.

IN a work of this kind it is impossible to give more than a short synopsis of the principal breeds of poultry, for many of these are now so subdivided into varieties or colours as to entail a separate book to themselves. To any poultry-keeper taking up a particular breed seriously, we would therefore recommend the purchase of one of the many excellent handbooks now published dealing specially with that variety.

For purposes of general description, we cannot do better than adopt a very common method of classification of modern breeds of poultry—namely, that based upon the land of their origin, or, to put it more correctly, of manufacture, for most of our modern breeds of poultry are the result of the skill of generations of fanciers. They thus fall very naturally under the headings of—(1) British Breeds; (2) French Breeds; (3) Mediterranean Breeds; (4) Asiatic Breeds; (5) American Breeds; (6) Other Varieties.

British Breeds.

In class one we have Dorkings, with their offshoots the Sussex, Old English Game, Modern Game, Indian or Cornish Game (strictly speaking, of Asiatic ancestry), Redcaps, Scotch Greys, Scots Dumpies, Hamburgs

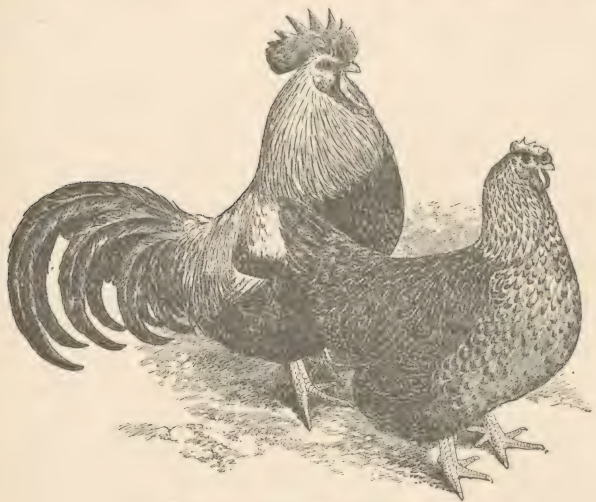


Fig. 12.—Coloured Dorkings.

(which owe so much to Yorkshire and Lancashire breeders), and Orpingtons.

The Dorking (Fig. 12).—With a history going back to the days of the Romans, who probably introduced it to this country, the Dorking can easily claim pride of place amongst English fowls. Ever since its Roman chronicler spoke of its high-class table properties it

has ranked high for this purpose. Crossed with Game or Indian Game, the Dorking excels for size and quality of flesh; and in Sussex, where the best table fowl are raised and fattened for the London market, the breeds most in favour largely owe their good qualities to their Dorking ancestry. There are five varieties of the breed—namely, coloured or dark, silver-grey, white, red, and cuckoo. The latter two varieties are now rarely seen.

In all varieties of the Dorking an essential characteristic is the presence of a fifth toe; another point is the whiteness of the feet, legs, and even the toenails, fitting accompaniments to the firm white flesh of this prime table fowl. The standard weights are 12 to 14 lbs. for cocks, and 9 to 10 lbs. for hens. The Red variety runs smaller, the weights respectively being 8 lbs. and 7 lbs.

The laying qualities of the Dorking are not high, and although some strains are fair in this respect, on the whole they must stand or fall by their table properties. The hens make good but somewhat clumsy mothers. The Dorking does best on the dry chalky soils of our southern counties, but it has been acclimatized with success to the colder and damper lands of Scotland.

Sussex.—In speaking above of the Dorking, allusion has been made to the Sussex fowl. Both breeds are closely associated in origin, and rival each other in their good table properties. The Sussex, however, have the additional advantages of being very fair

layers, and their chicks are hardy and easy to rear. At Uckfield Agricultural College Training Farm, Mr. S. C. Sharpe found the Light Sussex the best as winter layers out of the fourteen breeds kept at the farm, and whilst not excessively prone to broodiness, they make excellent sitters and mothers. All have white legs, and feet with four toes. There are four varieties: the Light, which is pure white with black striped neck hackle, black flights and tail; the Speckled (see Col. Plate, p. 33), a striking combination of reddish-brown ground colour with black and white markings; the Red; and the Brown. The last is difficult to describe as regards its colour—the hen being very similar to the Dark Dorking, and the cock not unlike a Partridge Wyandotte. The standard weight for cocks is 9 lbs., and for hens 7 lbs.

Old English Game (Fig. 13).—This is another typically British breed. Formerly used chiefly for the old sport of cock-fighting, in these modern days it is much in request as a table fowl, either crossed on other breeds or pure. There are many colours of Old English Game, but the most common are the spangled—remarkably handsome birds—black-breasted red, piles, and duck-wings. As might be expected from the purposes for which for generations the breed was fancied, they are extremely pugnacious, and this quality must be taken into account where more than one cock is kept. For this reason they are not suited to a confined space; but, given a free range, the birds are splendid foragers, and will pick up much of their own living, and the

quality of their flesh for table purposes cannot be excelled. Like the pheasant, for their size they carry a very large amount of meat with the minimum of bone and offal. The standard weights are: cocks, 5 to 6 lbs.; hens, 4 to 5 lbs. The hens are excellent and most courageous mothers, and some strains of Old English Game are very fair layers. Still, they

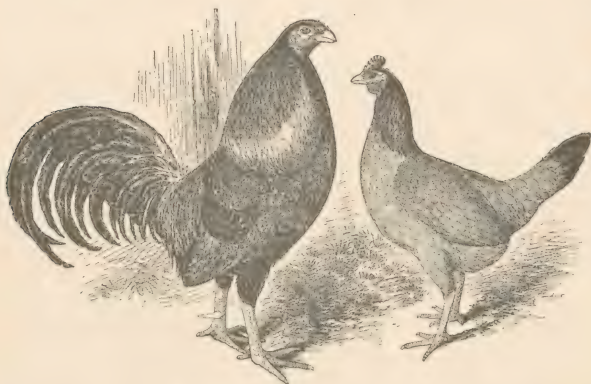


Fig. 13.—Old English Game.

are essentially the fowl for the farm or gentleman's estate, as they need liberty to keep them in the hard condition necessary for the "thoroughbred" of our British poultry.

Modern or Exhibition Game (Fig. 14).—These are derived from the Old English Game. An interesting diagram in "The Book of Poultry" portrays the gradual evolution of the variety from the typical fighting game-cock of 1850 to his long-legged, reachy

descendant of 1900 and the present day. To obtain the length and neck demanded by fanciers and judges a Malay cross was introduced, and for a time the Modern Game was a popular exhibition fowl. Breeding to extreme fancy points, however, weakened its constitution, and this, coupled with a reaction in favour of the true Old English Game fowl, has reduced the number of Modern Game now kept and exhibited. It is a fancier's fowl pure and simple, and as such probably falls outside the scope of those for whom this little book is intended.

Indian or Cornish Game.—Although their usual prefix "Indian" rather belies their right to be included as a true British breed, they are undoubtedly of British origin, having been bred in the West of England by crossing Aseels and Malays with Old English Game. At first used by Cornish miners for fighting purposes, they are still of pugnacious character; but, like all the breeds of Game ancestry, are excellent table fowl, either pure or crossed with other breeds. The feathers are close and hard, so that the birds do not look so heavy as they really are. The club standard gives the minimum weight as 10 lbs. for cocks and 8 lbs. for hens, but birds often exceed these figures. Whilst not good layers, Indian Game are excellent sitters and mothers, and are at their best on a free range, as becomes their Game ancestry. (See Illustration, p. 87.)

Redcaps (Fig. 15).—These are natives of the Midlands, and especially of Derbyshire, where they are great favourites, being extremely hardy, and therefore well

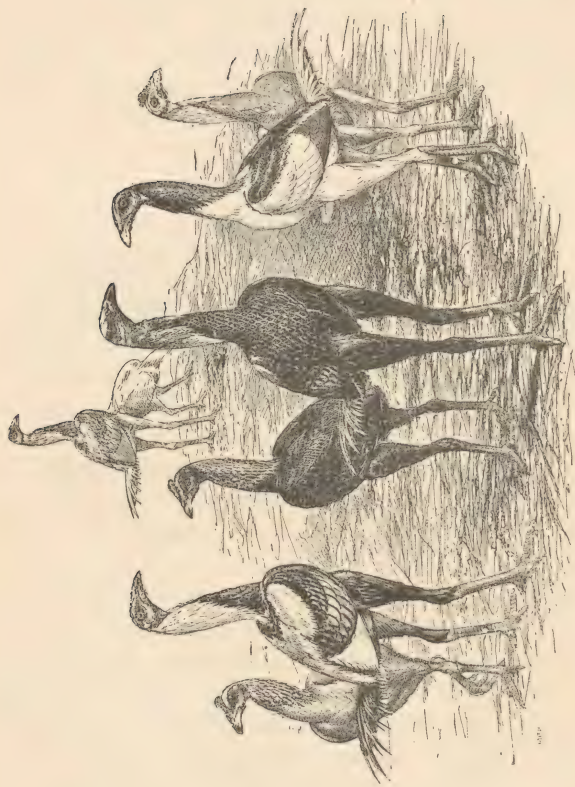


Fig. 14.—Modern Game.

suited to high, exposed situations. They derive their names from their comb, which is very large, covering the top of the head, and has a bunch of small spikes, closely resembling one of those rubber mats on which

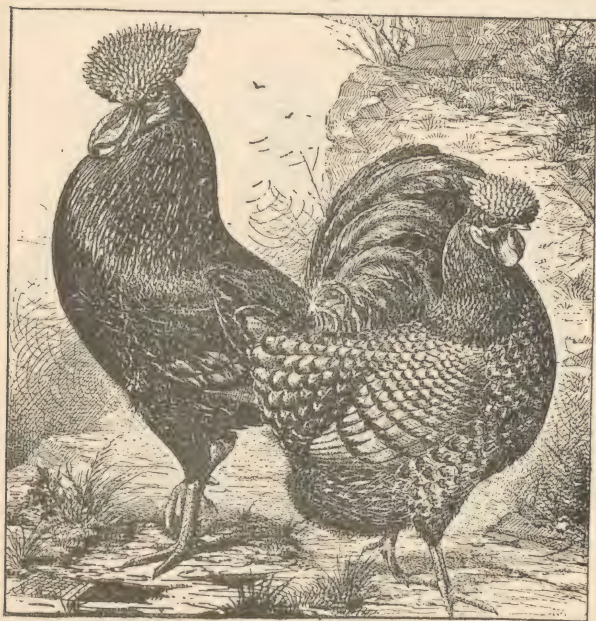


Fig. 15.—Redcaps.

change is often given in shops. They are good winter layers if well looked after, yielding an average-sized tinted egg; are very rarely broody; and as layers all the year round they rank high. As table birds they

are also not to be despised, the standard weights being : hens, $5\frac{1}{2}$ to $6\frac{1}{2}$ lbs. ; cocks, about $7\frac{1}{2}$ lbs.

Scotch Greys and Scots Dumpies.—Here we have two breeds which are little known south of the Border, but have many admirers north thereof.

The Scotch Grey (Fig. 16) is an active single-combed

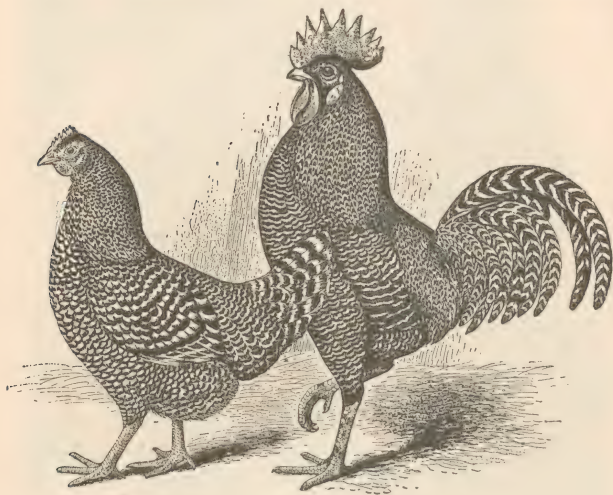


Fig. 16.—Scotch Greys.

bird of cuckoo plumage, somewhat similar to that of the barred Plymouth Rock, but sharper and more distinct in its contrasts, the standard now calling for hard black and clean white. It is a hardy breed, well able to stand the cold and damp of its native country, and is an excellent forager, but does not bear confine-

ment well. The hens are rarely broody; indeed, the club classes them as non-sitters. The egg average from strains, where attention has been paid to this point, is very fair; and although the breed is not very large (the standard calling for 7 to 8 lbs. in cocks and

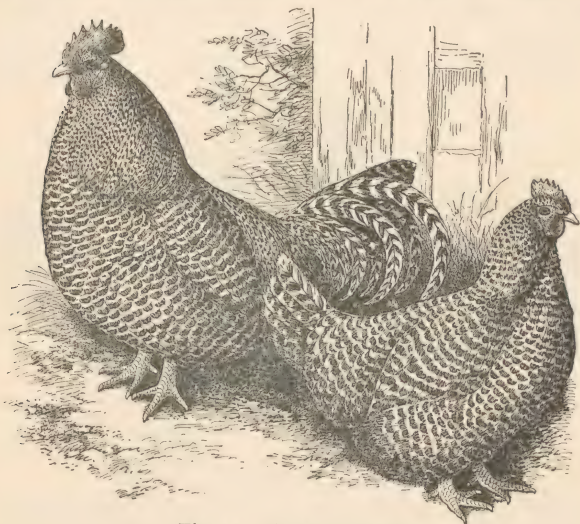


Fig. 17.—Scots Dumpies.

5½ to 6½ lbs. in hens), the flesh is of the best quality. The chicks are hardy and easily reared.

Scots Dumpies (Fig. 17), until a club was formed for them in 1912, threatened to become almost extinct. This would have been a pity, for they are a useful as well as a quaint-looking breed, somewhat akin to the French Courtes Pattes as regards extreme short-

ness of legs. From their shape and long deep body, they make capital table birds, and are also good layers. The standard weight for cocks is $7\frac{1}{2}$ lbs., and for hens 6 lbs. The breed is found in various colours, the black, cuckoo, dark, and silver-grey being those most exhibited. The comb can be either single or rose, but the former is preferred.

Hamburghs, which have also borne the desirable

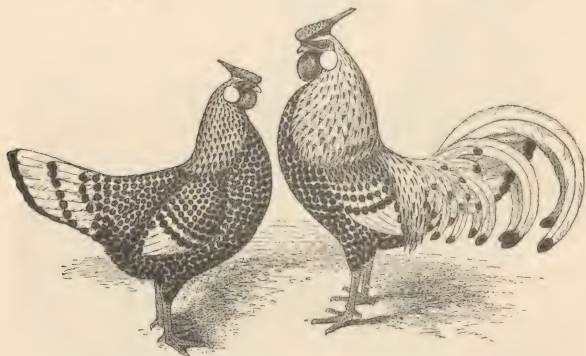


Fig. 18.—Silver-spangled Hamburghs.

nickname of “everlasting layers,” are special favourites in Yorkshire and the north. In addition to the good laying qualities of strains unspoilt by too close inbreeding for fancy points, the breed can claim, with its five varieties of black, gold-spangled, silver-spangled (Fig. 18), gold-pencilled, and silver-pencilled (Fig. 19), to include the most handsome of our modern breeds of poultry.

Unfortunately, in breeding for exhibition points,

size has too often been sacrificed, and as a result the eggs are small ; and the standard weights of 5 lbs. for pencilled cocks and 4 lbs. for pencilled hens—the spangled and black varieties are rather heavier—does not admit of their being classed as table fowls.

Orpingtons are of comparatively modern origin, for the black variety, the first, was only introduced in

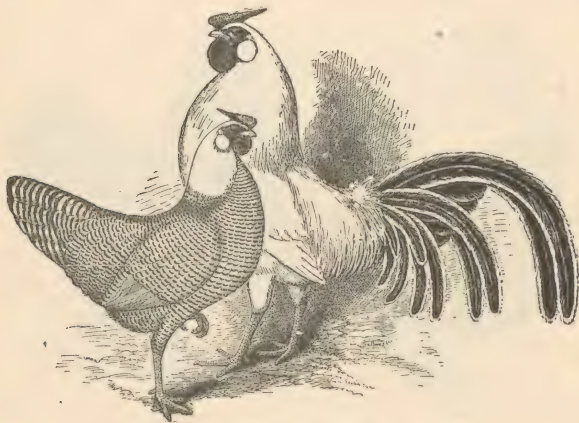


Fig. 19.—Silver-pencilled Hamburgs.

1886, and, like the colours which have succeeded it, was formed by the crossing of several varieties to produce a good, useful all-round fowl for laying and table purposes. The type evolved now breeds so true to standard that it is deservedly classed amongst our English breeds, and is probably the most popular breed of poultry. The originator of this useful

variety was the late Mr. William Cook of Orpington House, St. Mary Cray, Kent, which has since acquired a world-wide reputation in consequence. In shape the Orpington is a broad-bodied fowl, with a good deep chest, short back, and rising saddle. The legs are short, and in general appearance the bird should be

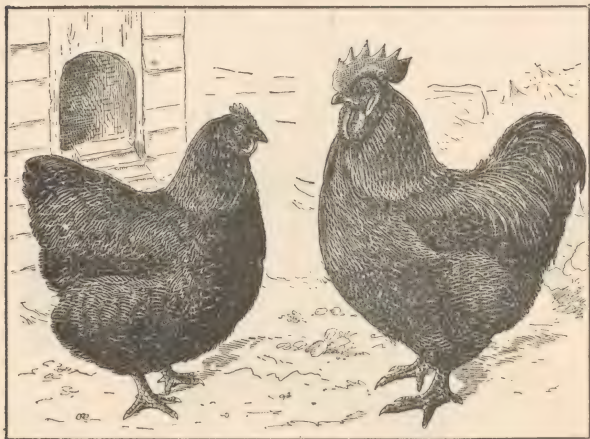


Fig. 20.—Black Orpingtons.

cobby and compact. The standard weight is 10 lbs. for cocks and 8 lbs. for hens. The size and whiteness of flesh make the Orpington, either pure or crossed with Game or Indian Game, an excellent table fowl. It is, moreover, if the pullets are hatched in March or April, an excellent winter layer of rich brown eggs, and, though prone to broodiness, especially in the

black and buff varieties, is hard to beat as an all-round fowl. When the breed is kept in confinement, care must be taken to guard against over-fatness, for Orpingtons are big eaters, so that if eggs are required this point must be watched—as, indeed, it should be with other varieties.

As to colours, the Orpington offers the poultry-

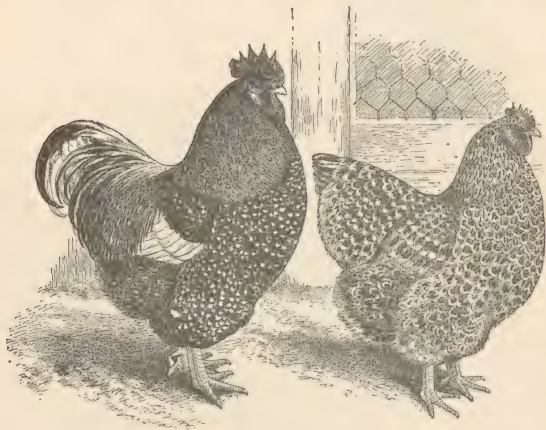


Fig. 21.—Jubilee Orpingtons.

keeper much scope in the way of choice ; for there are blacks (Fig. 20) (the original colour), buffs, whites (see Col. Plate, p. 99), blues, spangles, jubilees (Fig. 21)—so named from having been brought out in the late Queen Victoria's Diamond Jubilee year—cuckoo, and, still more recently, a red variety. The whites are, perhaps, the greatest favourite, followed by the buffs ;

but all the colours rank high as all-round utility fowls, and are suitable to almost all situations.

French Breeds.

Under this heading we include Houdans, Faverolles, Crêve Cœurs, La Flèche, and La Bresse as the French breeds best known in this country.

The Houdan (see Frontispiece), the first of these, is regarded by the French as one of their best utility fowls, as the breed combines excellent table and laying qualities, besides being hardy; and the chickens, though requiring care in rearing, mature quickly.

Like other crested varieties, they are not now much kept in the British Isles, though they still have a few faithful admirers, who know their worth and stick to them. They are useful either for a free range or for confinement, and are a very valuable breed to cross with almost any other, especially with White Leghorns or Buff Orpingtons, either for laying or table purposes. They are non-sitters, and layers of large white eggs; and, though not generally first-class winter layers, some strains are good in this respect. The standard weight is, for cocks, 9 lbs.; hens, 7 lbs.

The Houdan, like the Dorking, has five toes. A feature of the breed is its curious leaf comb, which, with its crest, gives a very characteristic finish to its handsome black-and-white plumage.

Crêve Cœurs and La Flèche, although ranking high in French esteem, are very little kept in this country. Crêves (Fig. 22) were formerly fairly common in parts of Scotland, where they were found to stand the cold weather. They, as well as La Flèche (Fig. 23), are

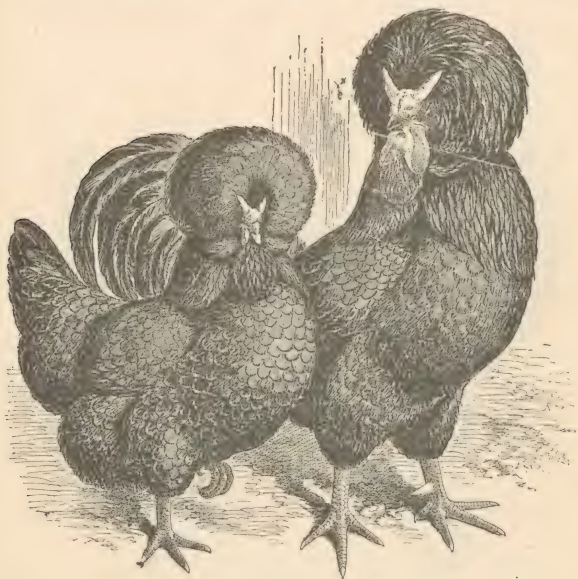


Fig. 22.—Crêve Cœurs.

good large table fowls, non-sitters, and lay a large white egg. Both are green-black in plumage, and the Crêve has a crest and curious V-shaped comb; whilst La Flèche are plain-headed, except for the horned comb peculiar to the breed. The weights for

Crêves are: cock, 9 lbs.; hen, 7 lbs. La Flèche run 1 lb. lighter.

Faverolles (Fig. 24) have of late years gained many admirers in this country as birds of sterling utility and quality, and for exhibition. They are very

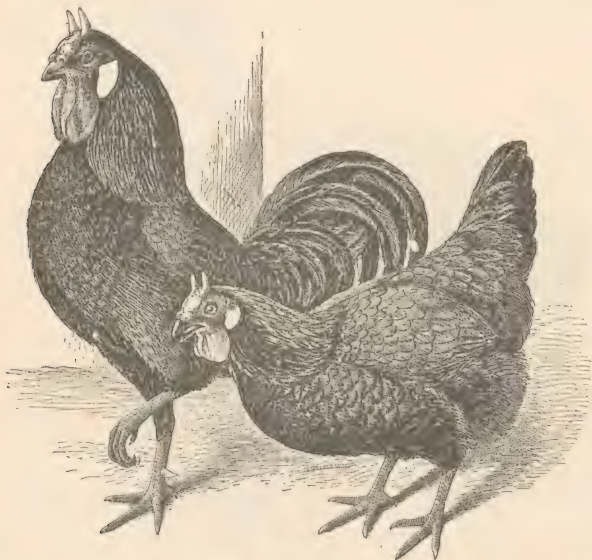


Fig. 23.—La Flèche.

hardy, good foragers, excellent winter layers of tinted eggs, good sitters and mothers. Their chickens are easily reared, so they can be regarded as a good all-round variety for poultry-keepers. They are of several colours, but the most common are the salmon,

ermine, and white. The salmon cock is of the Dorking colour, shading down at the breast and under parts to light fawn. The ermine are white, with black stripes in hackles and tail akin to the light Brahma, to which breed and the Dorking they may owe some of their descent. They are slightly feathered on the legs, have the fifth toe of the Dorking and



Fig. 24.—Salmon Faverolles.

Houdan, and a beard and muffing, which give the breed a quaint, old-world appearance. The standard weight for cocks is from 7 to $8\frac{1}{2}$ lbs., and for hens from 6 to 7 lbs.

La Bresse.—Of other French breeds, perhaps the only one necessary to mention is La Bresse, for which a club has been formed in this country. These are

active birds, non-sitters, very fair layers, and good table birds. They are single-combed, and in type rather resemble the old-fashioned Leghorn, and are found in two colours—the black and the white. The weight for the cock is 6 lbs., and the hen 5 lbs.

Mediterranean Breeds.

First in this family, which, by the way, contains all the principal non-sitting varieties, comes the

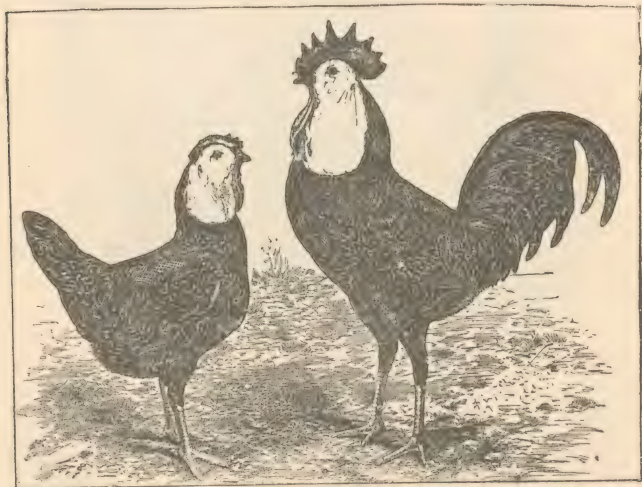


Fig. 25.—Black Spanish.

Black Spanish (Fig. 25), a once very popular breed, but now, alas ! fallen from its high estate. This decline

in favour has been largely due to the fashion of breeding for an enormous expanse of white, kid-like face. This white face was very difficult to keep properly, and for show purposes entailed a good deal of not always legitimate preparation ; and in breeding for the point too many fanciers lost sight of the utility qualities. This was a pity, for the old Spanish fowls were good layers of a very large white egg, but had small pretensions as table poultry. A few good strains are left, and where these can be obtained, Spanish make a good variety for town poultry-keepers. As their name implies, they are black in plumage, with single combs and white faces. The weight for a cock is 7 lbs., and for a hen 6 lbs.

Minorcas (see Col. Plate, p. 113).—These to a large extent have taken the place of the Spanish, and not many years back were essentially the fowls for the backyard as well as the show-pen. The large development of comb in the breed, however, threatens their popularity in turn ; but there are signs, fortunately, of reaction in this respect. Minorcas are good layers of a large white egg, and in the south and west of England, as well as in the north, are largely kept for this purpose. They are non-sitters, are hardy, and stand confinement well. The single-combed variety is the chief favourite, but the rose-combed offshoot is gaining in popularity as a useful fowl, the closer fitting comb making it less subject to frostbite. Having black plumage, Minorcas are very suitable for town. There is also a white variety, but this is rarely met

with. The weight for cocks is 7 lbs., and for hens 6 lbs.

Andalusians (Fig. 26).—This breed, having plumage laced with black on a delicate blue ground colour, is considered by many poultry-keepers who like to rear their own stock as too difficult a breed to keep,

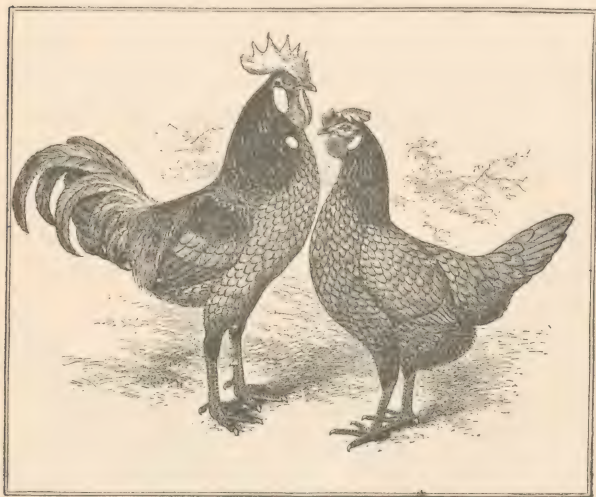


Fig. 26.—Andalusians.

since a percentage of the chickens raised come black or white, and not true to the desired colour. These mismarked birds, however, have their use with the skilled fancier when mating-up, and are just as useful egg producers—a point in which the Andalusian excels.

It is a remarkably handsome fowl, a good layer, non-sitter, and, like most of its Mediterranean *confrères*, is suited for either a free range or for the backyard poultry-pen. The weight for cocks is from 7 to 8 lbs., and for hens from 5 to 6 lbs.

In **Leghorns** we reach one of the most important and largest sections of the Mediterranean family. In it the choice in colours for the poultry-keeper is almost bewildering, for he has a black variety (single or rosecomb), buff, blue, white, duckwing (silver and gold), brown, cuckoo, and pile. Of these, the white, the black, and the brown (see Col. Plate, p. 127) Leghorns are the most popular.

As layers, the Leghorns rank very high, and for their size lay a wonderfully large white egg. As in other varieties, there has been a tendency on the part of fanciers to breed for special points, such as comb, length of leg, and a size very different from that of the Leghorn as first introduced; but a correspondence in *The Feathered World*, with striking illustrations of the variations thus made from the true type of Leghorn, has, we hope, checked the evil, and Leghorns can now be obtained in all the colours, serviceable for the utility poultry-keeper as well as for the fancier. In Australia the whites are special favourites, and hold the world's record for laying, averages of two hundred eggs per annum for birds being quite common. All varieties, with the exception of the rosecombed black, are single-combed, with bright yellow legs. The standard weights are: cocks, from

6 to 8 lbs.; hens, from 5 to 7 lbs. The breed does well either on a free range or in confinement.

The **Ancona** (Fig. 27).—This, as its name implies, is of Italian origin, and doubtless is derived from crosses between the black and white fowls of the district. It has much of the characteristic wildness of its

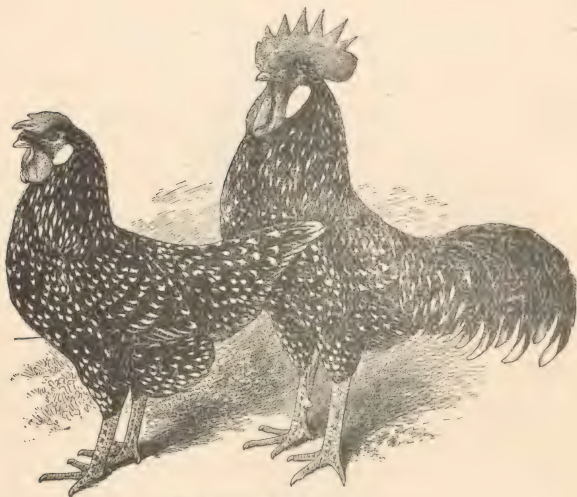


Fig. 27.—Anconas.

ancestors, the Black Leghorns, though this, as in the other breed, can be largely overcome by frequent handling and attention as chickens. The Ancona is a hardy, useful fowl, a non-sitter, and a layer of fair-sized white eggs, though in the Rosecomb variety some strains lay a tinted egg. The single-comb Ancona

is the more popular of the two, and is a handsome fowl, with striking dark beetle-green plumage mottled with white V-shaped markings, the tail and flight feathers being tipped with white. To this plumage the yellow beak, bright red comb, face, and wattles, and yellow mottled legs and feet make a pleasing contrast. The breed is an active one, and a capital forager; and, whilst best suited for this reason to a free range, like other Leghorns, lends itself well to confinement. The weight for cocks is from 6 to 7 lbs., and hens from 5 to 6 lbs.

Asiatic Breeds.

We now come to a section of the poultry family which contains some of the most interesting of the many breeds of fowls. Prominent amongst these are the Brahma and the Cochin, not so many years ago numbered amongst the most popular of exhibition poultry, and yet to-day fallen, like the Black Spanish, out of favour, owing partly to the vagaries of fashion in poultry-keeping, but still more to their having been bred for fancy points and feathers to the detriment of the utility qualities, for which they were first noted, and without which no breed can retain its position. Both breeds are remarkably handsome, and have done much, the Cochin especially, in building up other and newer varieties of poultry. Moreover, by the introduction of the Cochin into England in 1847, and the subsequent excitement

caused by its exhibition, an undoubted impetus was given to poultry-keeping in these islands.

Classed under this same heading are Langshans, Malays, Aseels, Silkies, Yokohamas, and Sumatra Game.

Brahmas (Fig. 28).—These are divided into a light

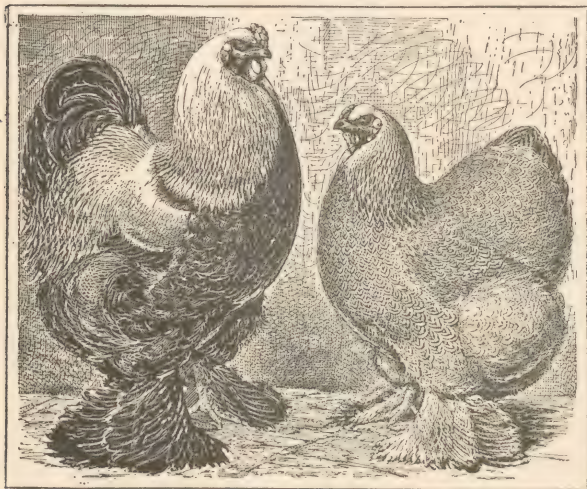


Fig. 28.—Dark Brahmas.

and a dark variety, each very handsome, and seen at their best on a nice grass plot. In the *Light Brahma* the plumage is white, with the neck-hackle sharply striped with black; the saddle also should be slightly striped with black, and the wings, tail, and coverts black-and-white. The *Dark Brahma*, as its name

implies, shows a preponderance of black in its body plumage, the neck and saddle-hackle in the cock being white striped with black, the wing bow and secondaries white. The dark hen is altogether unlike her mate except for head and neck hackles, the ground colour of her plumage being grey, with fine dark pencilling on the feathers throughout.

Both Light and Dark Brahmas have profuse foot feathering, and share with their probable ancestor, the Aseel, the curious triple or pea comb. As layers they cannot now be recommended, and as prime table fowl, owing to their large bone, they rank low, though furnishing a good meal for a family. Crossed with the Dorking or Houdan, they make large, serviceable table birds. Still, a pen of Brahmas kept where there is ample space at command will always be a source of interest and beauty. They are good sitters, but apt to be clumsy owing to the amount of leg feather. They rank among the giants of the poultry yard, the cocks weighing from 10 to 12 lbs., and the hens from 7 to 9 lbs.

Cochins (Fig. 29).—These are to be found in buff, black, white, partridge, and cuckoo colours, their popularity being somewhat in the order given. Allusion has already been made to the debt owed to the Cochin by modern breeds of poultry, and it is a pity that fanciers, when breeding for the purposes of soft silky feathers, which render the Cochin of to-day best described as a huge ball of fluff, lost sight of the winter-laying properties present in the Cochin when

first introduced. Its size is of value for table purposes when judiciously crossed with other breeds, as in the case of the Brahma, the cocks weighing from 10 to 13 lbs., and hens from 9 to 11 lbs. Cochins are very prone to broodiness, and are now poor layers. They are good but rather clumsy mothers, owing to their



Fig. 29.—Buff Cochins.

foot feathering. They are easily kept within bounds, and can be given either a free range on grass or be kept in confinement.

Langshans.—As now bred, these may be counted as the most useful of the Asiatic breeds. They are divided into two sections, each with their specialist club, the Croad Langshan (see Col. Plate, p. 141), and

what is generally known as the Modern Langshan (Fig. 30). Both are capital breeds, good layers of a rich-coloured egg, and useful table poultry, preference from a utility point, perhaps, being generally given to the Croad Langshan as an all-round fowl. The chief

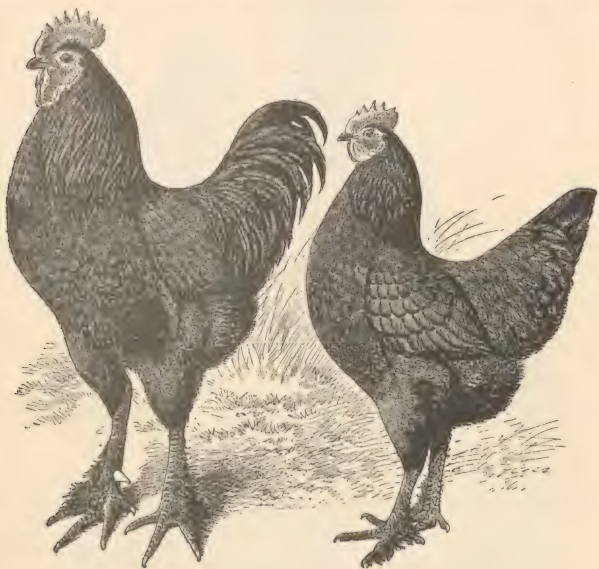


Fig. 30.—Modern Langshans.

difference between the Croad and Modern Langshan lies in the greater size, length of leg, and rather more gamy character of the second as compared with the first. In plumage both are black, with a beautiful green sheen. In the Modern Langshan there is a white

variety, and also a blue with a slate-blue ground colour and darker markings, somewhat like the Andalusian. All are good sitters, and whilst best

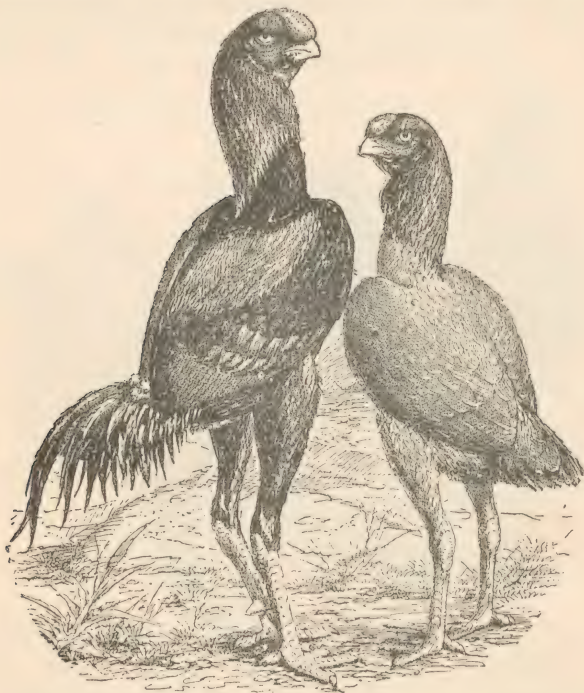


Fig. 31.—Malays.

suited to a free range, can be kept in confined pens if sufficient exercise be provided for them by making them scratch for their corn, and overfeeding be

avoided. The outer side of the legs and the outer toe in Langshans are feathered slightly. The weights for Modern Langshans are: cocks, 10 lbs.; hens, 8 lbs.; and for Croad Langshans, 9 lbs. and 7 lbs. respectively.

Malays (Fig. 31) now rank as a purely fanciers' fowl, and like our British bulldog owe such popularity as they enjoy to an ugliness which awakes curiosity if not regard. They are the veritable giants of the poultry yard. Mr. Comyns, in his "Poultry for the People," when alluding to their great reach, says that they stand sometimes as high as thirty-four inches, and measure as much as thirty-eight inches from end of claw to beak when laid on the ground. In colours there are pile, red, spangled, and whites. The weight for cocks is 11 lbs., and for hens 9 lbs. As table birds they are not to be despised, and make useful crosses for this purpose. They rank as fair sitters, but are, however, but very moderate layers of a tinted egg, and are extremely pugnacious.

Aseel (Fig. 32).—In the Aseel we have one of the oldest breeds of poultry, and one, moreover, bred for centuries, like our Old English Game, for fighting purposes only. It has had much to do with the production of the Indian Game, and possibly, to a smaller extent, with the development of the Malay, and as such merits wider encouragement than it obtains. Unfortunately, the pugnacity of the breed is now so inherent as to render the rearing of any number together practically impossible. Their

staunchest adherent, Sir Claud Alexander, Bart., writing of the birds in "The Book of Poultry," alludes to this fact, with the curious commentary that this quarrelsome disposition seems directed almost solely against other Aseel, and is not pro-

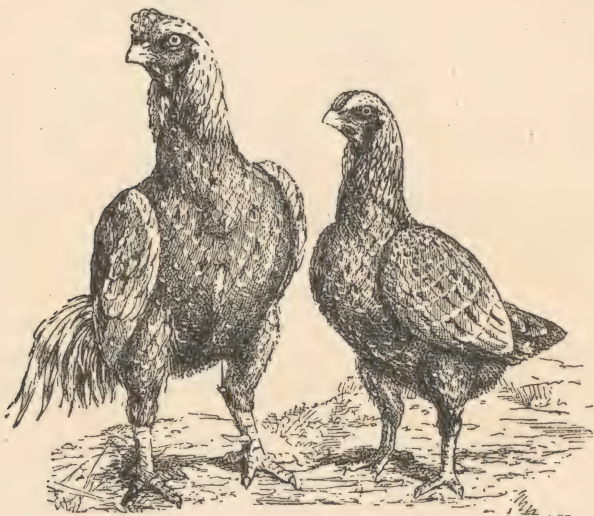


Fig. 32.—Aseel.

voked by other breeds when mixed with them. They are capital table birds, with plump breasts, but are poor layers. They make good and courageous mothers, however. The standard varieties are black, grey, red, black spangle, red spangles, white, and

yellow. Weights are : 6 lbs. for cocks, and 5 lbs. for hens.

Silkie (Fig. 33).—These are so named from their characteristic plumage, which differs from that of other poultry in its lack of stiff fibre in the feather and its general flossiness of texture. Other peculiarities

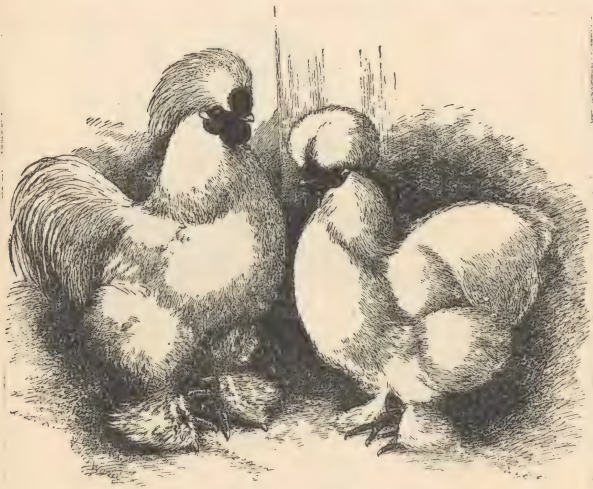


Fig. 33.—Silkies.

of the Silkie are the mulberry-coloured comb, face and wattles, turquoise-blue ear lobes, violet skin, dark-coloured legs, and the presence of a fifth toe. The breed for a time was often classed amongst Bantams ; but this is now remedied, and separate classes are provided for Silkies at all leading shows. They make excellent mothers, and are often crossed with other

breeds for this purpose alone. In addition, they are capital winter layers of a rather small egg, and very docile and easily kept within bounds. The usual colour is pure white; some blacks are bred here, and in France other varieties are fairly common.

Yokohamas (Fig. 34).—As a breed these are a com-

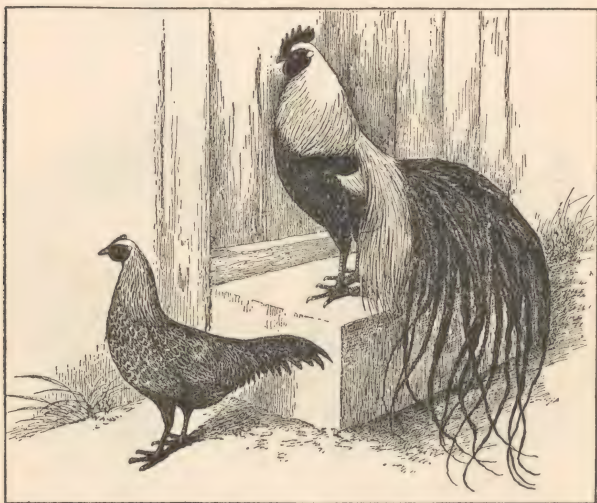


Fig. 34.—Yokohamas.

paratively recent addition to our poultry yards though in Japan they have long been bred. They were first known here as Phoenix fowls or Japanese Long-tails, and it is to the wealth and length of their tail feathers that they largely owe their restricted popularity here. Apart from markedly game pro-

perties, and a participation in many of the colours of that breed, their distinctive characteristic is their great length of tail, the sickle feathers of which sometimes attain five or six feet in length, and are moulted but once in three years. As a breed, they are suited only to poultry-keepers with ample space at their

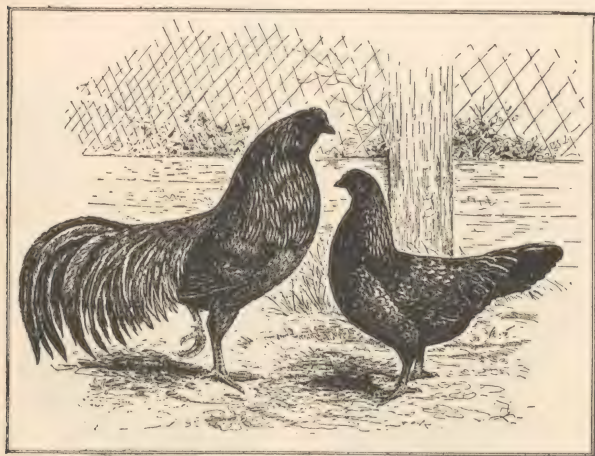


Fig. 35.—Black Sumatra Game.

command. They are hardy, very fair layers and sitters, and make small but good table birds. The weight for the cock is $4\frac{1}{2}$ lbs., and hen, $2\frac{1}{2}$ lbs.

Sumatra Game (Fig. 35).—Here we have another breed of long Asiatic lineage, but of comparatively recent introduction to British poultry-keepers. The rich metallic lustre of their greenish-black plumage

and their graceful carriage make them very handsome fowls. In addition, they are fair but not winter layers, and, like all game birds, though small, carry a good deal of meat with a minimum of offal. They are good sitters and mothers, but are not suited for confined runs. The weights are : cocks, from 5 to 6 lbs. ; hens, from 4 to 5 lbs.

American Breeds.

Wyandottes.—Pre-eminent amongst these stands the Wyandotte, which, although of more recent intro-

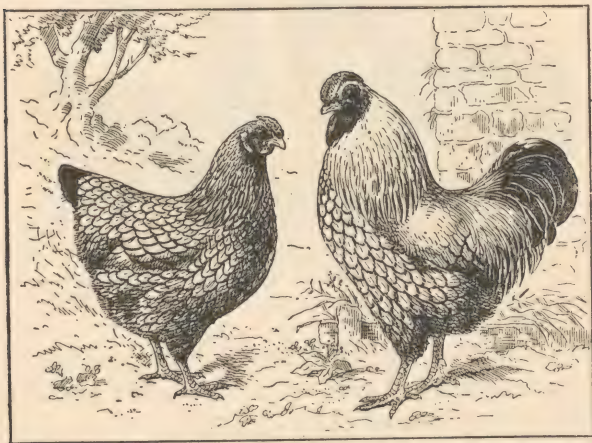


Fig. 36.—Silver-laced Wyandottes.

duction to Great Britain from the United States than the Plymouth Rock, has outstripped the latter in

popularity. Indeed, if a vote could be taken of all the keepers of poultry, it is probable that amongst the sitting breeds the deservedly popular Wyandotte would run a close race with Orpingtons, followed at considerable intervals by the equally useful Plymouth Rocks, Sussex, and Rhode Island Reds.

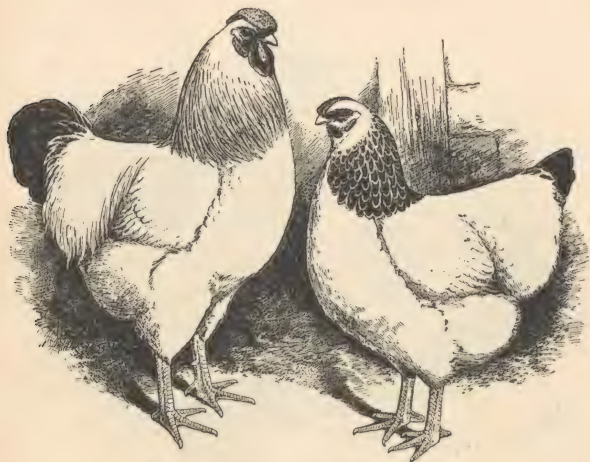


Fig. 37.—Columbian Wyandottes.

We will, therefore, first, take the Wyandottes which, when originally introduced, were sometimes called American Sebrights, as the silver-laced variety (the first to reach here) closely resembled Sebright Bantams in having white feathers edged with black (Fig. 36). The two names, however, caused confusion, so the American name of Wyandotte was ultimately adopted. The

silver-laced variety was followed a few years later by the gold-laced, in which the white ground colour of the silver is replaced by a chestnut colour described as "rich golden bay." Both of these varieties have now lost their first wide popularity, owing partly to the difficulty of breeding them up to exhibition point

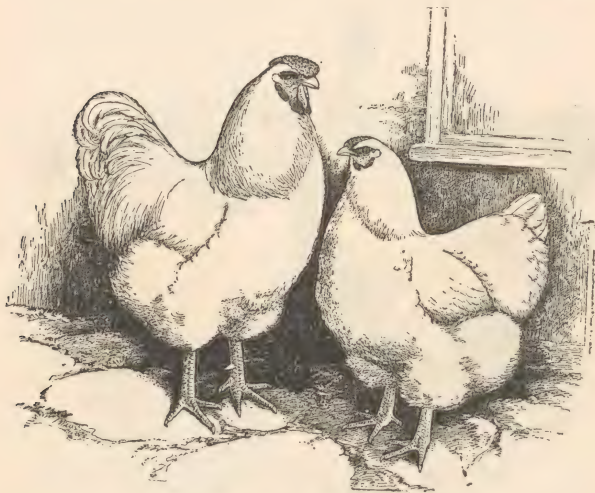


Fig. 38.—White Wyandottes.

without double-mating (that is, separate breeding-pens to produce exhibition cockerels and pullets), and partly to the breed being at first in too few hands.

The prime favourites of the Wyandotte family now are the solid-colours or *Sels*; whites standing foremost, followed by buffs and blacks. Columbian

Wyandottes (Fig. 37) are, however, now gaining ground rapidly, and promise in a very short time to stand next to the White (Fig. 38), being a very pretty variety, the snowy whiteness of their body plumage contrasting well with the dark striping of their neck-hackle and black markings on wings and tail, very similar to

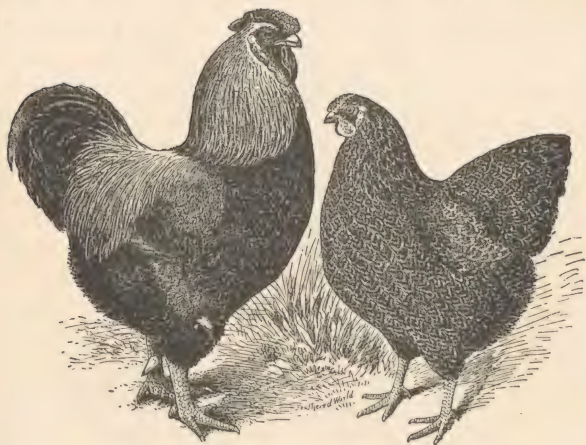


Fig. 39.—Partridge Wyandottes.

those of the Light Brahma. Besides these we have the *Partridge* (Fig. 39) (good layers, hardy and exceedingly showy and handsome birds, but unfortunately again a victim to double-mating for exhibition purposes), the Blue, the Buff, and the Blue-laced, Silver-pencilled and Cuckoo, but of the three last named very few are seen.

The Wyandottes, as a whole, rank as our best all-

round layers, though their slightly tinted eggs are not as large as they should be relatively to the size of the birds. Wyandottes bear confinement, and do well also on a free range ; and make quite good table birds, though the flesh is somewhat yellow. The Whites are especially good layers, and will often begin laying again while still brooding chickens. They are not so consistently broody as some of the Orpingtons, and are more easily broken off it, if so desired. Still, if allowed to sit they make good mothers. The average weights for Wyandottes are : cocks, $8\frac{1}{2}$ lbs. ; hens, 7 lbs.

Plymouth Rocks.—In the Plymouth Rocks we have another useful all-round breed of poultry, for it combines capital laying properties with great size, cocks weighing from 10 to 12 lbs., and hens from 8 to 10 lbs. Moreover, as a table bird, where no distinct prejudice exists against a yellowish skin the Rock is very useful, the chicks being very hardy and easy to rear. For exposed situations it has few equals ; the late Mr. Proud was a great upholder of the Buff Rock's claims to pre-eminence in this respect.

The first colour to reach us from America was the Barred, in which the plumage has a blue-white ground colour, evenly and shapely barred across with greenish black. The effect of this marking is very handsome, and the variety soon became great favourites, and, although to an extent dispossessed of some of their popularity by the more recently introduced buff, black, white, and blue varieties, all of which have their strong

supporters, the Barred Rocks (see Col. Plate, p. 157), are still widely kept for their excellent utility qualities. Indeed, on a recent tour in Ireland, we learnt that the peasants in many parts prefer them to all others for egg production. For exhibition purposes, in the barred variety some breeders employ double-mating, always

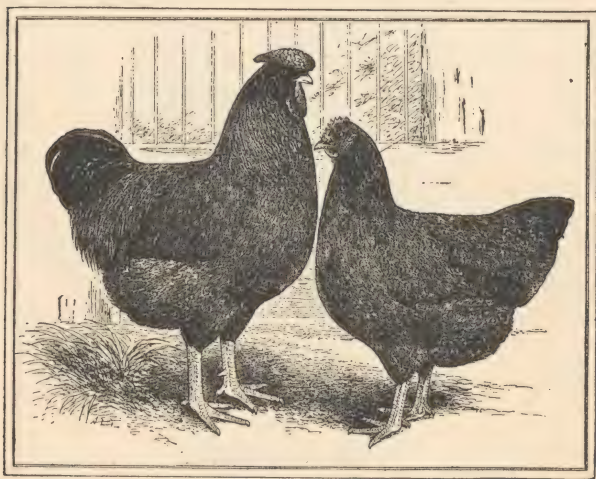


Fig. 40.—Rhode Island Reds.
(Rosecomb Cock and Single-comb Hen.)

a drawback to the popularity of the breed ; but that this is not altogether necessary is evident from the successes of at least one well-known single-mater. Rocks, whilst best suited for a free range, can, if given proper exercise and carefully fed, be kept in confinement.

A somewhat kindred fowl to the Rock is the Dominique, also of cuckoo plumage, but rosecombed, and better known in the United States than on this side of the Atlantic.

Rhode Island Reds (Fig. 40).—These are the latest of the excellent breeds of poultry sent us by our American cousins. They are the result of fifty years of crossing for utility purposes amongst the poultry of Rhode Island farmers. A fairly definite type has now been evolved, and clubs have been formed for the breed both here and in the country of its origin. Both single and rosecombed varieties are permitted, and the colour may be described as a rich, brilliant red, with a certain amount of black feathers in wing and tail of the cock and tail and hackle of the hens. As an egg producer, and as a very fair table bird, the Rhode Island is well spoken of. The standard weights are : cocks, $8\frac{1}{2}$ lbs. ; hens, $6\frac{1}{2}$ lbs. The breed is very hardy and a good forager, but also stands confinement.

Other Varieties.

Under this heading we include several breeds for which standards are provided by the Poultry Club, and which do not fall into the five families already dealt with.

Polish (Fig. 41).—Of these, perhaps the most remarkable is the Polish, a very ancient breed and once very popular as an exhibitors' fowl in this country, but now rarely met with, though it still fortunately

has a few faithful admirers. In the United States, Canada, and Belgium the breed is still fancied, and at American shows, and nearer home at Brussels, many different varieties are exhibited. Polish are very long-lived fowls, and are well adapted for yards in town. They offer much scope in the way of colour,



Fig. 41.—Silver Polish.

including as they do white-crested blacks, buffs, black-crested whites, whites, buff-laced, gold and silver spangled, cuckoo, and ermine; and blues and blacks have also, we think, been shown at Brussels. The cause of their waning popularity in this country is the trouble connected with their crests. The fanciers have demanded a large one, and breeding for this, coupled with the discomfort and inconvenience of

carrying such an appendage, has probably resulted in loss of stamina, and a good deal of infertility in the breeding season, except where the crests are either tied up or clipped. If, however, the ordinary poultry-keeper will only breed moderate-sized crests, no diffi-

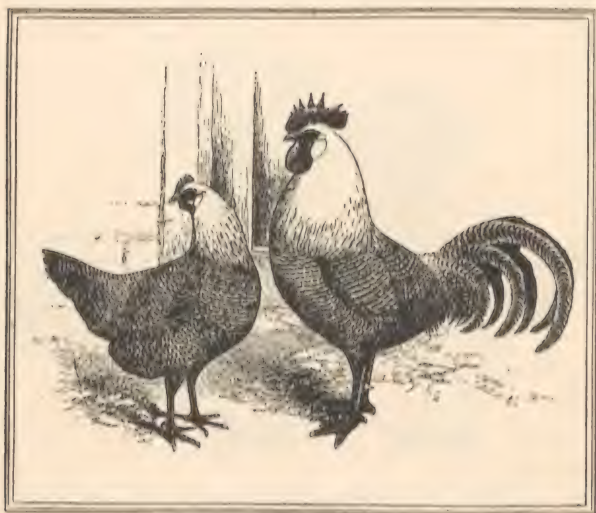


Fig. 42.—Silver Campines.

culty should be found in rearing the chickens if guarded from wet. Polish lay large white eggs, chiefly in spring and summer. They rarely sit, and as table birds their flesh is of good quality and very suitable for home consumption. The weight for cocks is $6\frac{1}{2}$ lbs., and hens 5 lbs.

Campines (Fig. 42).—Belgium is the home of many useful breeds of poultry, and prominent amongst those which we have received from her we must place the Campine. This is a remarkably hardy and useful variety, laying a large white egg considerably out of proportion to the size of its producer, and, what is more, doing this over a long period. To the non-fancier the Campine very closely resembles a pencilled Hamburgh with a single comb, though it is rank heresy to say so in the hearing of a Campinist. There are two varieties—namely, the Silver and the Gold, the former being the greater favourite. The standard weight for cocks is 7 lbs., and for hens 5 lbs. They are active fowls, hardy, and non-sitters; and, though they have no pretension to great table qualities, the chicks are plump and toothsome morsels, so they can safely be recommended as a most useful breed. Campines are keen foragers, and if it is intended to keep them in confinement, their wing feathers must be clipped, or the run must either be wired over at the top or the side-netting made high enough to prevent such active fliers escaping.

Malines (Fig. 43).—This is another Belgian variety, which is beginning to gain favour here both for laying and table qualities. They are slightly feathered on their legs and feet, but not sufficiently to require any special attention to that point. There are several varieties, the chief being the Cuckoo (Coucou in French), and hence the reason why they are usually called “Coucou de Malines.” In plumage they resemble

the Barred Plymouth Rocks, and the breed being the Belgian table bird, is well suited for fattening and table purposes. Laying properties are fair, the eggs being rather small and tinted. The Malines is hardy, a good sitter and mother, and the chicks are

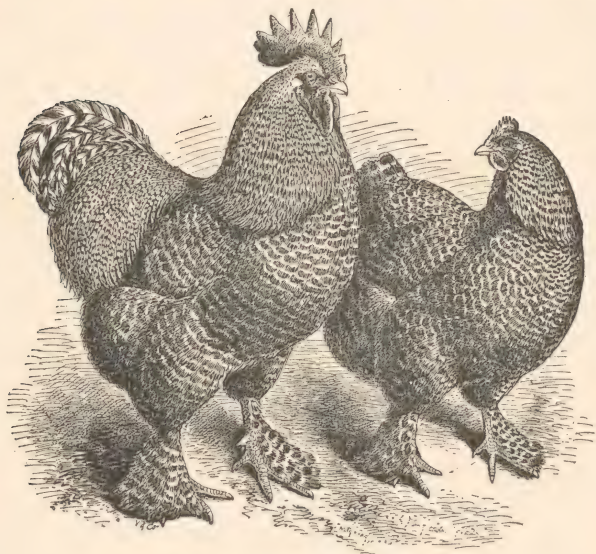


Fig. 43.—Malines (Coucou).

easy to rear. Other colours are the black, white, ermine, etc., and there is a turkey-headed variety in all colours.

Lakenvelders (Fig. 44).—These, when first brought over here from Holland and exhibited in 1902, caused

quite an excitement owing to the striking contrast of their colouring, the black neck-hackles and tail showing up markedly against the pure white of the rest of their plumage. As a breed, it is best suited to a free range, and is a spring and summer rather than a winter

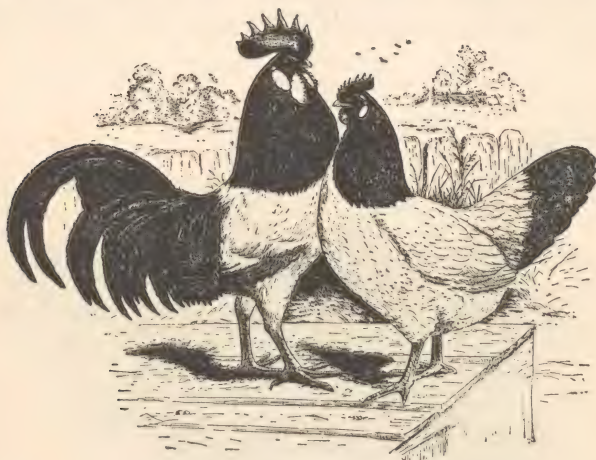


Fig. 44.—Lakenvelders.

layer. The standard weights are: cocks, 6 lbs.; hens, $4\frac{1}{2}$ lbs.

This may well close our catalogue of the principal breeds of poultry; for such breeds as Sultans, Frizzles, Naked Necks, Rumpless, and the many minor varieties of American and Continental poultry do not fall within the scope of such a work as this.

Bantams.

These midgets should be mentioned, for though usually kept as pets or for exhibition purposes, yet where space is limited they are not without their utility value, as for their size they lay a large egg, and some

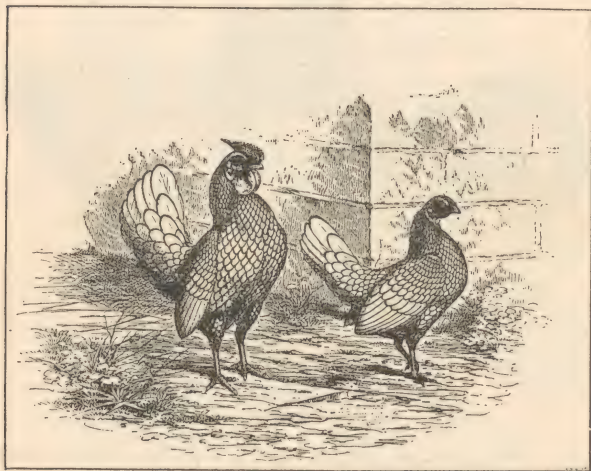


Fig. 45.—Sebright Bantams.

strains also a fair number of eggs. Moreover, well-bred Bantams of popular varieties are in fair demand, so that any one taking them up with care may breed some good enough for exhibition, and so turn an enjoyable hobby into a profitable venture. As we write,

we have in our memory a lady who started in this way, and has been most successful.

Bantams offer a large assortment of choice, since we have in them miniatures of the larger breeds of Modern and Old English Game, Malays, Indian Game, and Aseels, as well as what are usually termed " Variety " Bantams. Under this heading are found Rose-

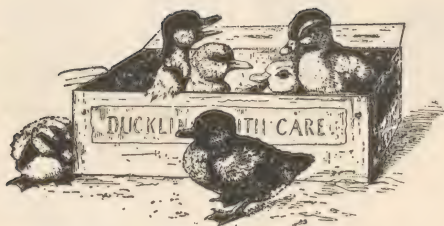


Fig. 46.—Rosecomb and Japanese Bantams.

combs (black and white) (Fig. 46), Polish, Brahma, Pekin or Cochin, Sebrights (Fig. 45), Booted, Japanese (Fig. 46), and bantamized versions of most of the other larger varieties of poultry.

Bantams require much the same treatment as their larger relatives as to feeding and housing; but since a Bantam ought to be small, care must be taken not to overfeed it, and so unduly increase size. The menu

given for feeding ordinary chicks will do with the reduction in quantities necessary for difference in size. A cross between a Silkie and a Pekin Bantam makes one of the best sitters and mothers for hatching and rearing Bantams.



Chapter V.

THE FEEDING AND MANAGEMENT OF ADULT STOCK.

MANY theories on this subject have been propounded already, but the following advice will, we hope, be found serviceable and promote the well-being of the poultry-keeper's flock. It will readily occur to readers that the same feeding is not advisable all the year round, and thus it may be convenient for them if each month is treated on its own merits, with any special hints necessary for the season.

January.

January is with most exhibition poultry-keepers the commencement of the breeding season, although the keen breeder for exhibition will have had his breeding-pens mated in November, and incubators busy in December for hatching out on January 1st. The breeding-stock need to be well fed, as they have hard work before them in the production of eggs at a season of the year earlier than the natural period for

laying. They must not, however, be overfed, as overfed (fat) hens will lay very few eggs, and those produced are likely to be infertile, or, if hatched, produce weak chicks. To check this, the birds should be handled occasionally to see if they are in good condition. The best time to do this is after the fowls retire to roost, when they can be caught easily. If all the pen are found to be over-fat the general rations can be reduced, and a pinch of Epsom salts given in the drinking water, just sufficient to make it slightly saline, for a day or two. If, however, only a few of the birds are affected, the offenders can be penned up and treated separately. In all flocks of poultry it will be found that some birds eat faster than others, and so get more than their fair share, and it is only handling which will reveal the fact that all are not in proper condition. Should any be too thin, then a more generous diet must be adopted, especially in cold weather, when an extra strain is caused by the claims of heat production.

Menus.—The menus for the adult stock which follow may at first sight appear complicated and troublesome, but they are the result of long experience in answering thousands of questions in *The Feathered World*, and were produced at our desire by the late Mr. P. Proud, and revised by his successor on our staff, Mr. H. Inman. They have stood the test of time, and attention to them will well repay poultry-keepers in the shape of more eggs from their fowls and healthier stock generally.

These menus, it will be seen, form five groupings

for the twelve months, and vary according to the weather usually prevalent at the seasons. In exceptional weather, common sense must be used as to which dietary to select. Some poultry-keepers prefer to give hard corn in the morning and the soft food at night. Where a good scratching-shed is provided, there is much to be said for the practice, as the fowls are kept busy and warm when first let out by scratching for their breakfast among the litter, and the feeder's work is lessened in the morning. A good meal of soft food at night, these fanciers say, sends the birds warm and comfortable to bed with full crops of easily digested food. Where this system is adopted, the breakfast and supper in the menus which follow must be transposed.

One caution is necessary to beginners: beware of cheap poultry foods and mixed lots of corn. Buy the best you can possibly afford, for musty biscuit and meat meals and the dusty sweepings of granaries are dear at any price, and lead to many ills in poultry. Keep your foods in separate receptacles, for which capital zinc-lined barrels with hinged lids can be bought cheaply. These will be rat and mouse proof, and so waste will be avoided. See, too, that all drinking and food troughs are kept scrupulously clean, and no sour food left about to be picked up and cause bowel and other troubles. Give the fowls as much as they will eat readily, and in confined runs, when giving whole oats or wheat, rake the grains into the litter, so that the birds may have the exercise of scratching for them.

FEEDING MENUS FOR ADULT STOCK.

January, February, and March.

SUNDAY AND THURSDAY.—*Breakfast*, 8 a.m., stout white oats or peas, Canadian for preference. *Dinner*, 12 to 1 p.m., any meat scraps from table mixed with cooked vegetables, such as turnips, cabbage, or cauliflower, but no potatoes. Also green food when obtainable, which should be hung up in the run at least two feet from the ground. If green food is not obtainable, the birds should have a turnip cut in halves to peck at, and this should be renewed on alternate days. *Supper*, 4 to 5 p.m., maize—the large flat or broken maize.

MONDAY AND FRIDAY.—*Breakfast*, soft food composed of boiled swede turnips, which should be well boiled until quite soft, and can be put over the fire at night and allowed to remain until morning, when they only require warming up. These should be then taken out of the pan and mashed whilst hot, and mixed to a fairly crumbly nature with two parts ground oats, two parts pea-meal, and two of middlings. To this should be added some scalded granulated meat, one part meat to three parts meal, and this feed should be given warm, and should be placed in troughs or on a board, and not thrown on the ground. *Noon feed*, green food only. *Supper*, oats or wheat.

TUESDAY AND SATURDAY.—*Breakfast*, scalded bis-



cuit and meat meal and maize meal, equal parts, allowed to stand ten minutes to swell, then dry off with thirds or middlings until the whole is of a crumbly nature. *Dinner*, green food, or turnips cut in halves. *Supper*, oats or wheat.

WEDNESDAY.—*Breakfast*, soft food composed of one part maize meal, one part ground oats, one part fine bran, the whole scalded together, making it fairly sloppy, then allowed to stand for ten minutes, and sufficient thirds or middlings added to make the whole mash fairly crumbly. *Dinner*, some kind of animal food, such as boiled bullocks' lights or sheep's plucks, or, better still, when it can be obtained, fresh-cut green bone, which is the finest egg-producer that can be given. Whichever class of animal food is given, half an ounce should be allowed to each fowl. If lights or sheep's plucks are given, the liquor from the boiling meat should be utilized to mix the next morning's soft food with after it has been made hot. *Supper*, oats or wheat.

IMPORTANT.—*For all the year*.—When feeding with grain, this should be scattered amongst some litter in the scratching-shed, which should be composed of peat-moss litter, cut straw, chaff, etc., in order to give the birds plenty of exercise in scratching about to find the grain. This is highly beneficial to egg production, and in a great measure prevents feather-plucking.

Twice or thrice a week during the winter, from September to December, a small piece of sulphate of iron the size of a small bean can be added to every pint

and a half of drinking water, and this will ensure a better egg supply, and will help to keep the birds in a healthy, active condition.

In the case of white birds that are required for exhibition, no maize should be given; the principal grain should be oats, white wheat, or white Canadian peas, but they can have a little ovary tonic in their drinking water.

When mixing the soft food always add a good pinch of salt to the meals before pouring on the water, allowing about a small tablespoonful of salt to sufficient food for every dozen birds, and when the snow is on the ground a small teaspoonful of mustard can be added to sufficient meal for every seven or eight birds, and this will help them to withstand the cold better. In feeding with soft food, allow one large heaped-up tablespoonful to each bird, and should they eat this up very greedily you can give a little more amongst the lot, but never on any account allow food to remain about. When feeding with grain, allow one small single handful, not more, to each bird; but if they are inclined to leave any lying about, reduce the quantity, although at this time of the year, when the nights are very long, it is very important that they should have a good feed at supper-time.

ALL THE YEAR.—Twice a week sharp flint grit, crushed oyster-shells, or old mortar should be given. These should be placed in a small box in the corner of the scratching-shed or somewhere under cover.

February.

Whilst January may be called the commencement of the breeding season for the exhibition poultry-keeper, so it is also for the wide-awake utility breeders who want to have chickens ready for the table just at the time when they are very scarce. All housekeepers know that a period comes in the spring of the year when such old fowls as are procurable can hardly be made tender by hours of boiling ; when young birds are either not procurable, or, if obtainable, small and too expensive for average purses. This is a market worth catering for, and where conveniences in the way of outhouses and sheds exist, there should be no difficulty about rearing hardy utility stock for market purposes at Easter and onwards, when game is over. The extra trouble entailed by looking after winter chicks is well repaid later. For chicken rearing, special menus will be found in chapter ix.

For the adult stock the feeding is the same as in January (see page 88). If the weather be cold and wet, keep a sharp lookout for any signs of *roup*, which is evidenced by sneezing, and a watery discharge from the nostrils and eyes. If detected, *isolate* the victim and give it roup powder in the drinking water, and as a precaution add some to the water for the pens whence the bird came. Successful treatment of roup depends upon the disease being detected in an early stage, when it is far more easily cured.

Be sure to see that the grit and oyster shell are

supplied plentifully. For proof of the necessity of this, the reader has only to watch how, when the birds are let out in the morning, they almost invariably go direct to the grit and oyster-shell box.

Another point to remember throughout the breeding season is to see that the male bird has sufficient food. Many an over-gallant cock will call to his hens and pick up nothing himself, and in such cases should be taken out and fed separately, or eggs from the pen will be weak in germ, if not infertile, when set.

March.

Breeding still continues throughout this month, and indeed, for utility poultry-keepers and breeders of the lighter varieties, until the end of May. March and April are, however, the chief months for hatching the prospective winter layers of heavy breeds like Rocks, Wyandottes and Orpingtons.

March in this country is often very cold, with bitter east winds, so care should be taken that the drinking water does not get frozen, for laying hens drink freely. It should be given fresh two or three times a day, and if this be done there will be the more likelihood of the drinking vessels—which are better made of either glazed earthenware or enamelled iron—being kept sweet and clean. The feeding advised is the same as for January. (See page 88.) In exposed runs see that the birds have shelter from cold winds, either by canvas shutters to the open fronts of their

houses, shelter hurdles in the runs, or, where possible, the natural cover afforded by shrubbery or copse. Warmth without stuffiness helps a good deal towards a full egg basket.

April.

The weather in this month should be more genial, and if it is, less meat can be given to the laying stock, as where they have grass runs they will find a certain amount of worms and grubs. A fresh menu is given on page 95 for this and the two succeeding months. As the weather becomes warmer, the soft food should be mixed fresh for each time it is given. Only as much as the birds will eat readily at the time should be given to them ; do not let any remain over, as, with the sun becoming stronger, the food left lying about soon goes sour, and is then a frequent cause of trouble with the stock, especially chickens.

Except to fowls on free range over grass which can pick up their own supply, green food should be given all the year round to poultry. This is easy enough when cabbages and lettuces are plentiful, but in the winter it is sometimes difficult to get a sufficient supply, though a friendly greengrocer can help with the outside leaves of vegetables. When scarcity occurs, an easy and simple method to supply the deficiency is to "sprout" some oats. For this the following will be found a useful recipe :—

Sprouted Oats.—Oats can be sprouted in shallow

wooden boxes, with sides from three inches to five inches deep, such as used by nurserymen for seedlings, the chief factors for their growth being sufficient but not too much moisture, together with light and warmth. In summer there is no difficulty about the latter points, but in winter either a greenhouse, corner of the kitchen, scullery, or warm outhouse is necessary for obtaining sufficient heat for rapid sprouting. The oats should be spread thickly over the bottom of the box, and at first watered freely, so that they may become thoroughly soaked; and as sprouting progresses, see that just sufficient moisture is supplied to keep them growing, but not to rot the roots. Some Americans advise a layer of ashes about an inch deep at the bottom of the box, but those that I have seen have consisted of oats only, which the chicks consume, rootlets and all. A little experience will soon tell the amount of oats which yield the best result. To keep up continuity of supply, a fresh planting should be made about every three days, and the sprouted oats fed to the chickens or fowls when from two inches to four inches high. A sod of these cut out is a rare treat to poultry when other green food is scarce. If preferred, the oats, before being spread in the boxes, can be thoroughly soaked in a tub of water; and this, where they are kept within doors, will do away with the attendant mess of at first watering the boxes freely.

Dried clover heads, which can be obtained ground in meal to various degrees of fineness, for mixing with the soft food, lucerne, roots (such as swedes, mangolds,

and turnips) are all useful as a vegetable diet for poultry. You may now adopt the following

Menus for April, May, and June.

SUNDAY, TUESDAY, AND FRIDAY.—*Breakfast*, 7 to 7.30, stout white oats or Canadian peas. *Dinner*, 12 to 1 p.m., any scraps from the table, except potatoes, which must be only given sparingly, but such vegetables as boiled cabbages, turnips, cauliflower, parsnips, and artichokes can be given freely, and all meat scraps. Green food should be supplied whenever possible, for they cannot have too much of this. When giving green food, it is best to tie it together and hang it up in the run about two feet from the ground. Should you be unable to procure green food, such as cabbage or cauliflower leaves, then give them a turnip cut in halves to peck at. *Supper*, 6 p.m., wheat, or if peas are given for breakfast, give oats.

MONDAY AND THURSDAY.—*Breakfast*, soft food composed of biscuit and meat meal two parts, and one part bran. Scald these well with boiling water, and allow to stand for about ten minutes, then add sufficient middlings to make the whole nice and crumbly. When this has been mixed, the proper quantity to give is from two to two and a half ounces per head, or not more than 1 lb. of food to each half-dozen birds. If biscuit meal is unobtainable, use in its place ground oats, but use equal parts of ground

oats and bran, scalded well and dried off as before. *Dinner*, any meat scraps or cooked vegetables, allowing not more than one ounce per bird. If the run is very small, it is a good plan to scatter just a handful of oats or small seeds amongst the litter in the scratching-shed, and this will help to keep them occupied scratching about till evening, as this exercise is of the utmost importance towards a good egg supply. *Supper*, either wheat or oats.

WEDNESDAY AND SATURDAY.—*Breakfast*, soft food composed of boiled swede turnips, which should be well boiled until quite soft, and can be put over the fire at night and allowed to remain until the morning, when they only require warming up. These should then be taken out of the pan and mashed whilst hot, and mixed to a fairly crumbly nature with one part pea meal, one ground oats, one maize meal, and three of middlings. To this should be added some scalded granulated meat, one part meat to three parts meal, and this feed should be given warm, and should be placed in troughs or on a board, and not thrown on the ground. *Dinner*, green food only. *Supper*, oats or wheat.

Once a week at this time of the year a little Epsom salts should be added to the drinking water, and once or twice a week a small piece of sulphate of iron, the size of a small bean, to every pint and a half of drinking water. This will ensure a better egg supply, and will help to keep the birds in a healthy, active condition.



May.

Feed as in the menu just given. As in this month we often experience very warm dry weather, we repeat the warning about not leaving surplus soft food in the sun, and emphasize that the water should be frequently renewed and kept sheltered from the sun. Oats form excellent food for warm weather, and may be given in any form as long as the birds will eat them. Anyhow, the thing to remember is that fat-forming food should be used very sparingly during the summer months of the year.

In May the weeding-out process amongst young and old stock should begin. It is no use feeding a number of birds that are not likely to be wanted later; therefore, as a start, superfluous cockerels may either be killed for table or sold. If exhibition poultry are the poultry-keeper's object, then by May the older chickens should be so far developed as to make it possible to pick out the youngsters, and the others are best disposed of so as to reduce the food bill and also give the promising chickens the benefit of greater space.

June.

The food can continue the same as for April and May, with certain modifications. Sometimes this month is very warm, and if it is, soft food may be practically discontinued, and hard grain—oats for preference—given almost entirely. Green food is

necessary, but see it does not lie about and get stale ; and the houses and runs must be kept sweet and clean, or you will soon have trouble. At this time of year, in fact from April—as advised in the feeding menu—a little Epsom salts may be put in the drinking water once a week, and on other days once and twice a week a piece of sulphate of iron the size of a small bean may be given in one pint and a half of drinking water. This will help to keep the birds fit and active.

July.

The moulting season begins this month, and from the menu given later on it will be seen that the food has been considerably reduced, as the sparser feeding helps the birds to shed their feathers quickly. Epsom salts should still be put in the drinking water on alternate days, just sufficient to make it taste saline. A little sulphur can with advantage be added to the soft food, and, alternately with the sulphur, linseed soaked in cold water may be added.

As soon as the birds have cast their old feathers more generous feeding may be given, so as to furnish material for the new growth of plumage, which is a considerable strain on their constitution. This extra food should consist of soft food two or three times a week, and instead of the Epsom salts a little iron should be added to their drinking water, though iron is not advised for white birds intended for exhibition.

Menus for July and August.

SUNDAY, TUESDAY, AND THURSDAY.—*Breakfast*, 7 to 7.30, stout white oats or Canadian peas. *Dinner*, 12 to 1 p.m., any scraps from the table, except potatoes, which must only be given sparingly; but such vegetables as boiled cabbage, turnips, cauliflower, parsnips, and artichokes can be given freely, and all meat scraps. Green food such as cabbage or cauliflower leaves should be supplied whenever possible, for they cannot have too much of this. When giving green food, it is best to tie it together and hang it up in the run about two feet from the ground. *Supper*, 6 p.m., wheat, or if peas are given for breakfast, give oats.

MONDAY AND SATURDAY.—*Breakfast*, soft food composed of biscuit and meat meal two parts, and one part bran. Scald these well with boiling water, and allow to stand for about ten minutes, then add sufficient middlings to make the whole nice and crumbly. When this has been mixed, the proper quantity to give is from one to one and a half ounces per head, or not more than one pound of food to each ten or a dozen birds. If biscuit meal be unobtainable, use in its place ground oats, and use equal parts ground oats and bran, scalded well and dried off as before. If the run be very small, it is a good plan to scatter just a handful of oats, or pinhead oatmeal or small seeds, amongst the litter in the scratching-shed, as this will help to keep the fowls occupied scratching about till evening, and this exercise is of the utmost importance towards a good

egg supply. This is all that is necessary at noon. *Supper*, either wheat or oats, and not more than an ounce and a half per head.

WEDNESDAY AND FRIDAY.—*Breakfast*, soft food composed of previous day's scraps from table, which should be boiled, or put over the fire at night and allowed to remain until morning, when they only require warming up. They should then be taken out of the pan, and mixed to a fairly crumbly nature with one part pea meal, one ground oats, and three of middlings. To this should be added some scalded granulated wheat, one part meat to three parts meal, and it should be placed in troughs or on a board, and not thrown on the ground. *Dinner*, green food only. *Supper*, oats or wheat.

FOR MOULTING BIRDS.

Early in July and onwards the majority of fowls will begin to drop into moult, and it will be seen from the above feeding that the quantity of food has been considerably reduced, with a view to getting the birds into a spare, active condition, for it is a well-known fact that the more reduced the condition, the quicker and more complete will be the moult. We have no better proof of this than the hen that has been allowed to hatch a brood of chicks, and run with them; for during the time of incubation, having only partaken of food once a day, by the end of three weeks she is run down in condition, her constitution is weakened,

and through being confined in a small coop, as a rule she drops quickly into moult, and the floor of the coop will be found littered deeply with feathers. To induce a quick moult, then, it is best to feed the birds very sparingly as soon as they begin to drop their feathers, leaving off soft food completely, and substituting oats in place of it, and reduce the quantity to about an ounce per head at each feed; but this need not be done until the birds begin to moult. To their drinking water a little Epsom salts should be added on alternate days, just sufficient to make it taste saline, or about a teaspoonful to every pint and a half of water.

FOR BIRDS WITH UNLIMITED RUN ON GRASS.

Birds that have a free range on grass need only have soft food once or twice a week, and they require less animal food and no green food given them. In other respects the feeding is just as given above.

August.

The food should be the same as advised for last month, the only difference being that any bird which has got through the moult should be fed more generously, as advised under "July."

Pullets that are maturing should be well fed, but *not overfed*, as they are not wanted to lay until October. If any show signs of coming on too rapidly, shift their quarters frequently and withhold stimulating foods. As a change in the evening meal, occasionally

give the birds wheat or paddy rice boiled instead of oats. If you are able to boil the wheat in milk, this is a good flesh-former.

During moulting, cod-liver oil is a good tonic for any bird that seems to be overcome by the strain of getting its new coat. The oil may have a little iron added to it if found necessary. Parrish's Chemical Food and Douglas's Mixture are also good tonics, and together with others can be obtained in the form of capsules from several venders of poultry medicines advertising in papers like *The Feathered World*.

Birds of light plumage that have finished the moult should, if required later for exhibition, be shaded from the sun and weather, or else they will run little chance of prizes in keen competition. Young stock, especially those of the long-legged breeds, should be looked at carefully for any signs of leg weakness. If any show symptoms, they should be kept in a quiet place, given special strengthening food, and a little cod-liver oil and colchicum wine, and in severe cases their legs should be rubbed with embrocation.

September.

With the coming of the autumn it will be noted that the feeding menu is changed and holds good for this month and the next. Particular notice should now be taken of the young stock to see that they get plenty to eat, as a bird that is checked in its growth at this stage will never make it up again. Growing

birds should have plenty of milk and oatmeal, but do not overdo any one food, for birds, like human beings, require variety in food. So it will be well to act upon the menu and ring the changes in their diet.

Those who are fortunate enough to live in the country should try to make arrangements for running their fowls on the farmers' stubble fields as soon as the crops are harvested—that is, in places where the farmer has not yet become awake to their advantages for his own poultry. Fowls so turned out, with a house to roost in at night, will practically pick up their own living for a week or two from the various grubs and insects they find, as well as the fallen corn from the sheaves. They will have to be shut up at night for fear of foxes and other vermin, but beyond that and a supply of clean water will need little attention. For poultry-keepers not so favourably situated we commend the following

Menus for September and October.

FOR BIRDS THAT ARE KEPT IN CONFINED EARTH RUNS.

SUNDAY, TUESDAY, AND THURSDAY.—*Breakfast*, 8 a.m., stout white oats or white Canadian peas. *Dinner*, 1 p.m., meat scraps and cooked vegetables, such as cabbage, cauliflower, turnips, or carrots, but not potatoes. Also green food each day. *Last feed of day*, at 5.30 p.m., to be wheat, if oats given at break-

fast time ; but if peas are given for breakfast, then let the last feed be oats.

MONDAY AND WEDNESDAY.—*Breakfast*, soft food, biscuit and meat meal and fine bran ; scald these together and let stand for a few minutes, then add sufficient middlings to make the whole crumbly. If biscuit and meat meal are not procurable, then use equal parts pea meal, ground oats, and fine bran, scalded, and dried off as above, and to this should be added a cup of granulated meat or meat greaves to every four cupfuls of meal, and this meal should be scalded well with boiling water before adding it to the meal and before the latter is scalded. When this is done, there will be no necessity to give cooked animal food at noon. The same applies to biscuit and meat meal. *Dinner*, green food, such as cabbage leaves or cauliflower leaves, hung up in the run about two feet from the ground. *Last feed*, oats, wheat, or peas, alternate nights, but do not give mixed.

FRIDAY AND SATURDAY.—Soft food as on Monday ; but should the weather be cold or wet add a handful or two of maize meal to the biscuit meal and bran before scalding—about half the quantity of the biscuit meal—and this must be allowed a little extra time to swell before adding the thirds or middlings.

FOR BIRDS THAT HAVE A GOOD GRASS RUN

the same feeding can be adopted, but in place of wheat at night give a little maize two nights a week, and add

a little more maize meal to the soft food, especially if the weather be cold or wet.

No animal food is required except what is given in the biscuit meal, as the birds during September and October will be able to find sufficient *natural* food.

NOTE.—MAIZE, MAIZE MEAL, and IRON in the drinking water should not be given to WHITE or LIGHT PLUMAGED birds that are required for exhibition.

October.

With this month we may expect the advent of rough weather, and the poultry-keeper will do well to be prepared for it, and to see that his houses and scratching-sheds are weather-proof, and, whilst cosy for the birds, amply ventilated.

The floor of the scratching-shed should be bedded deep with dry litter, into which the corn can be scattered so as to give the birds work finding it on days when exercise is debarred them outside. The litter may be anything—namely, peat-moss, chaff, dry leaves, pea haulms, sweepings after the corn has been threshed, or dry earth; but whatever it is, it must be *dry*, in order to get the best results from the birds.

If green food is scarce, a turnip, swede or mangold, cut in half, can be hung up in the run, or oats can be “sprouted” and given as advised on page 93.

November.

As winter is now upon us, a fresh feeding menu is

given for this month and December, and our diet tables are completed for the year.

November is probably the worst month of the whole year both for the poultry and their attendant, as it is generally very wet or very foggy, and looking after the wants of live stock under such conditions is not a pleasant task. However, it behoves us all the more to do our best to make the birds comfortable and keep them warm and dry if we want them to repay us in the way of eggs. Eggs during the winter months are becoming increasingly precious, even if only required for home consumption, but for those who wish to get early chickens, they are much more so. To keep the fowls warm, let them have the scratching-shed well bedded with dry litter, as advised for October. A canvas shutter to the front is useful to keep out driving wind and rain. The door to the run can be left open, so that the birds may go in and out as they please; but in bad weather it is better to feed the birds in their shed, raking all grain given into the litter, as advised, and giving the soft food in troughs.

Some of the older birds may not yet have moulted quite through. These should be kept well out of draughts, but not in any heated place, and a little sulphur or steeped linseed may be added to their soft food. Sometimes bread and milk in which the linseed has been mixed can be given. The linseed and milk both contain oil and fat, and will help the feathers to come better. If necessary, a little Condyl's fluid

can be added to the drinking water, as this helps to keep the bird healthy.

November is the month for mating up pens of the heavy varieties to get eggs for hatching out early chickens. Pens thus mated up should be given warm but well-ventilated quarters and be fed well. The usual precautions must, however, be taken against excess, so that the birds shall not get fat, but just attain the happy medium state which counteracts the bad climatic effects and brings the birds into breeding condition. To this end the menu which follows will be found useful:—

Menu for November and December.

FOR BIRDS THAT ARE KEPT IN CONFINED EARTH RUNS.

SUNDAY AND WEDNESDAY.—*Breakfast*, 8.30 a.m., stout oats or Canadian peas. *Dinner*, 12 to 1 p.m., meat scraps from the table and cooked vegetables, except potatoes. Also green food each day, which should be hung up in the run at least two feet from the ground. *Last feed of day*, 4.30 p.m., maize, and the best kind is the large flat or broken maize.

MONDAY, THURSDAY, AND SATURDAY.—*Breakfast*, soft food composed of two parts biscuit and meat meal, one part maize meal and one part fine bran, scalded together and allowed to stand for a few minutes, then sufficient middlings added to make the whole crumbly. Should biscuit meal be unobtainable,

then use two parts ground oats, one maize meal, one pea meal, and two fine bran, scalded, and dried off as before, and to this should be added a teacupful of scalded granulated meat to sufficient meal for every sixteen fowls, or one part of granulated meat to every four or five of meal, and this should be scalded with boiling water before adding to the meal and before the latter is scalded. In this case there will be no necessity to give cooked animal food at noon, nor is it necessary to do so if you give biscuit and meat meal in the morning, except in very cold weather, when the birds can have a little fresh-cut green bone, allowing about half an ounce to each fowl. This will greatly assist egg production. *Last feed*, maize, oats, wheat, and peas, alternate nights, but never mixed.

TUESDAY AND FRIDAY.—*Breakfast*, boiled turnips, mashed whilst hot and mixed with equal parts ground oats, pea meal, and middlings sufficient to make the whole fairly crumbly. At *noon* some kind of animal food or fresh-cut green bone should be given. *Last feed*, grain.

When green food is not obtainable, the birds should have turnips cut in halves to peck at two or three times a week. These roots to a great extent take the place of green food.

FOR BIRDS THAT HAVE A GOOD GRASS RUN

the same feeding can be adopted, and a little more maize meal can be added to the soft food, especially

during the depth of winter, when the weather is very cold and wet. Remember to scatter the grain amongst litter to give the birds exercise.

December.

The weather during this month is often fairly severe, and this accounts for the more heating dietary recommended in the menu, with meat and maize and barley meal figuring therein. It will also be observed that "green" bone is advised—not putrid bone, as some people appear to think, but fresh uncooked bones, ground up in a bone cutter, or else smashed by a hammer, which is a far more laborious process. Where any number of fowls are kept, a bone-cutter is a good investment, and, in common with other appliances, foods, and medicines mentioned in these pages, is advertised in *The Feathered World* at reasonable prices.

Poultry-keepers who are exhibitors will perhaps have found that, with the winter show season at its height in November and December, their birds on return from shows often require a little special attention and care before being put back into the pens. A few extra tit-bits and a pick-me-up in the way of a cod-liver oil capsule will not come amiss, and isolation for a day or two to recover from the excitement and strain of a big show is always advisable, besides being a safeguard against roup and other diseases being carried to the rest of the pen.

Chapter VI.

SELECTION OF STOCK BIRDS FOR BREEDING.

SOME poultry-keepers appear to be gifted with a kind of native intuition as to the selection of birds for mating. Almost instinctively such a breeder knows that this bird mated to that will give certain results, or "hit," as the saying is, in fancy parlance. Such folk are to be envied, for the subject of selection of stock for breeding, whilst one of the most interesting, is at the same time one of the most difficult branches of poultry-keeping, especially for the fancier who goes in for exhibition fowls.

Utility Stock.

To the utility breeder it does not present the same troubles, for the objects which he has in view in the production of good layers or of fine table poultry are easier to attain than those of his purely "fancy" colleague, with an intricate standard before him, wherein feather and markings, colour and size, type, shape, and carriage all play a part.

Each, however, if he is to succeed, must proceed upon certain definite lines, and to be successful in either respect, must first have a good knowledge of the material upon which he proposes to work.

Let us take the case of the utility breeder first. If building up a laying strain is his objective, it will be well for him, after making his choice of breeds, to get a pen or pens of birds from a breeder who has a reputation for supplying reliable layers. These should not be too closely related, as in-breeding is not desirable in utility stock, and the pens should preferably consist of pullets mated to a two-year-old cock, or hens in their second year mated to a vigorous cockerel; it is not advisable to breed from young stock on *both* sides.

The Register.—When the pen or pens are secured, if progress is to be made, it is necessary that an efficient register should be kept not only of every egg laid, but of the particular hen which laid it. For this purpose every bird must be ringed, toe-punched, or numbered, and the eggs laid by it be registered to its account, so that at the end of the year its individual record can be ascertained. To arrive at this, it is, of course, necessary to trap-nest the birds as already advised on page 32, and thus by breeding from those hens only which have proved themselves good layers, mated to cockerels also descended from good layers (for this is equally important), an egg-laying strain may be built up.

From this it will be seen that the utility breeder has as much necessity for keeping a pedigree chart

and carefully marking all his stock as has the breeder of fancy poultry. Moreover, when the need for securing fresh blood arises, through lack of size or vigour in his stock, it behoves him equally to be wary as to the source from which he introduces it, lest by the introduction of a cock from a bad laying strain he should lose years of labour.

With *table poultry* the task is easier, for the stock-raiser has chiefly to consider the requirements of his particular market, and select, from the breeds mentioned in Chapter iv., the varieties best suited to his purpose—such as Sussex, Faverolles, Orpingtons, Dorkings, Houdans, Rocks, etc., and the excellent crosses of Indian Game and Old English Game with these and other breeds—according to whether his sale is for medium or large-sized chickens. If the birds are intended for the fatterer, it is well to study the preference of the latter, for fatteners are not all of one mind as to which breed makes the most quickly marketable fowls.

As *early maturing* is a point to be looked for—each extra week's feeding means so much off the profit of the raiser—the breeder of table fowls, whilst not having to keep a strict pedigree chart, will do well to note down for future reference the results of particular breeds and crosses in this respect, and also the prices secured for them relatively to age and cost of rearing.



BLACK MINORCAS

W. J. G. 1911

Exhibition Stock.

The breeding of exhibition stock has now become a work of such high specialization for each particular breed as to be almost outside the scope of a general handbook to poultry such as this is. For each variety mentioned in Chapter iv. a standard of perfection is issued by The Poultry Club, which goes into the points required in great detail. This standard must, of course, be thoroughly studied by any one who aims at successful breeding. It can be procured either in book form at 1s. 2d., post free, under the title of "The Poultry Club Standards," or the individual standard of the breed can be obtained on application—enclose a penny stamp—from the secretary of the specialist club, whose name and address are always published in "The Feathered World Year Book."

Besides this help, typical coloured plates are published of most varieties, and these, coupled with visits to shows and conversations with experts thereat, will do much to train the beginner's eye as to what is required in exhibition specimens of the breed selected. Handbooks on each breed by recognized authorities are also available at very small cost, which go into details as to selection and mating in a way impossible in a general work. Moreover, fancy papers like *The Feathered World* have special articles on breeds, and their "Answers to Queries" columns are always open to novices in difficulty on points of mating, choice of breeds, feeding, and the like.

General Principles.—There are, however, certain general principles in stock breeding which can be mentioned here. First comes the pretty obvious one that birds faulty in the same respect should not be mated together, as, if they are, the failing will become firmly established in their progeny, and be all the more difficult to breed out again. Instead, the careful breeder will see to it that lack of quality or size or other defect in one bird is made up by the super-excellence in this respect of its mate, and thus a step is taken to counteract the weak point in the young stock resulting. To do this, thorough knowledge of the stock and their trend in breeding is necessary; and it is just this skill in selection which makes it advisable for the novice to put himself in the first instance in the hands of a reliable breeder for his breeding-pen or pens, asking the vender to mate them up for him. If he keeps his eyes and ears open at shows, or has fancier friends, he will soon learn whom to avoid, for there are always sharks on the lookout for the unwary; and he will by this method do far better than the amateur whose entry to exhibition circles is chronicled by the purchase at high prices of winning birds of a dozen strains; and who, disgusted at the result of such mixed matings in next year's breeding season, retires disgusted from a fancy, in which, with better judgment and at far less expense, he might have achieved success.

Sex Influence.—Another point of general application in breeding is that, as Lewis Wright so well puts

it, the female has preponderating influence upon size, form, and constitutional qualities; the cock upon colour, markings, neatness of comb, and eyes. In regard to general carriage or symmetry, as a rule the cockerels tend to follow the father's type, and the pullets that of the mother.

The age of stock for breeding is also worth a note, the practice usually adopted being to mate a cockerel to hens and a cock to pullets, though, of course, exceptions for special purposes are made. The number of mates to each male varies with the age and vigour of the bird—whether it is a heavy or light breed, the time of the year, and whether on a free range or in confinement. As a general rule, it can be assumed that a male on free range can be allowed more hens than in a confined pen, wherein, in the case of a heavy breed, four mates will be sufficient in the early part of the season, the number being increased later if needed. With the lighter breeds the number can safely be doubled.

A capital method was shown to us lately by Miss Le Patourel, a well-known Buff Orpington breeder, whose breeding-pens are each divided into three houses, each with its separate run. This is an ingenious system whereby the energies of the male bird are husbanded, and a marked increase in the fertility of eggs has resulted. In the centre, with its own small run attached, is a cockerel box, wherein the male bird roosts, and, more important still, has his meals apart from his mates. On the left of this

is a larger house and run, into which the male is admitted after his first feed for the morning, and which is tenanted by two hens selected for line breeding. With these he remains till midday, when he is returned to the centre house again, fed, and then let into the larger house and run on the right, which holds four hens of equal quality, but not reserved for line breeding. With these hens the cock remains till the evening, when he returns to his centre quarters for feeding and the night. On Sunday the male has a day off, being confined to his house and run. The result of this experiment has been most successful, and it may prove a wrinkle to others who have been troubled by infertility in the earlier parts of the breeding season.

Pedigree Record.—We advised the utility breeder earlier in this chapter to keep a careful record of his stock; in a still greater degree is a pedigree record necessary to the exhibition breeder. The same methods of marking can be employed—namely, ringing with celluloid spiral leg bands of different colours, or with numbered metallic rings; or making in the web of the chickens' feet a series of punched holes, by which quite a number of variations in marking can be obtained without cruelty to the bird. (See Figs. 77 and 78.)

Where line breeding is systematically carried out—and it is by this means the best results are secured—many breeders are not content to know from which pen of birds a chick is descended, but require

to note its individual parents as well. To do this, the marked eggs are distributed in compartments of a pedigree tray in the egg drawer of the incubator, or the eggs of a particular hen after trap-nesting can be confined to the care of one broody bird, and the chicks be marked as soon as hatched. The value of this intimate knowledge of the relationship of all one's stock will be of the utmost service in subsequent matings, and especially so if, as with fancy poultry, inbreeding has to be carried out to a large extent to fix points permanently.

Stock and pedigree registers, which can be purchased, render the task of keeping such a record far easier than the description appears to warrant.

Another method of starting fancy poultry is to purchase sittings of eggs, or, better still, day-old chicks, from a reliable breeder. This is, of course, a longer road generally to success than the purchase of a breeding-pen mated, for not only is a year lost at the start, but the chances are nothing like so good that the chickens when reared will make a breeding-pen of equal value to that mated by the skill of a breeder. Still, when the purse cannot afford the dearer method, sittings or day-old chicks must be obtained; and if the row be in consequence a longer one to hoe, the buyer has at least the chance of getting one or two good specimens if they come from a reliable source. And here a note of warning, for, alas, like does not always produce like, and the winners of the successful breeders are the chosen

few, often out of hundreds of chicks hatched. The beginner must, therefore, not expect to rear all Palace winners, even from the highest-priced sitting. Lucky indeed is he if he gets a winner at all, or even some good stock birds from a purchased sitting to start with.

Cockerel and Pullet Breeders.

No better explanation of this perplexing term in connection with fancy stock can perhaps be given than that which we published some short time since in our paper, with illustrations, and which we reproduce here.

The term "cockerel or pullet breeder" is somewhat puzzling to the beginner, and the definition does not, as many people imagine, refer to birds that are more likely to produce a preponderance of cockerels or pullets in their progeny, but refers essentially to fancy points. In this way: Supposing you were mating-up a pen of Black Rosecomb Bantams for cockerel breeding. Now, in this breed length of feather or tail is a great point; so that pullets are selected that have very long and wide tail feathers. If the feathers are so long that they bend a little at the end after the shape of the cock's feathers, then these are the pullets that are likely to throw long, wide-tail-feathered cockerels in the progeny, the pullets from this mating being again used for a similar purpose; and so on.

Again, in a single-comb breed, such as Leghorns or Minorcas, if you intended mating a pen for cockerel breeding, you would, of course, desire that the cockerel's comb should stand straight up and the birds themselves be of good shape, and not high in tail. You would, therefore, select hens that had very thick combs at the base, and if they stood up an inch or

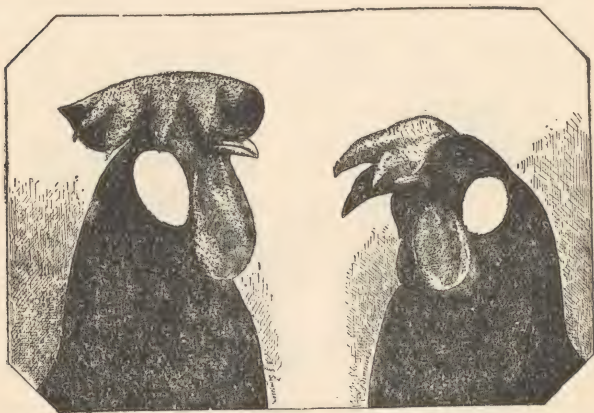


Fig. 47.—Birds mated for Pullet Breeding (Black Leghorn).

more before falling over, or were nearly erect, like the cock's comb, then these are the hens to put into the cock-breeding pen, especially if they carry their tails low and are large and of good shape.

For pullet breeding, hens with thinner combs and those which fall over well to one side might be used. To such birds mate a male whose comb has grown to

such proportions that it falls over to one side. It is also important that he should have good leg colour and a good tail carriage. You would then expect the pullets in the hatch to have better head points than the pullets from the cockerel pen. You would obtain cockerels and pullets from both pens, but some with more distinctive characteristics than if one pen only had been used. The illustration given

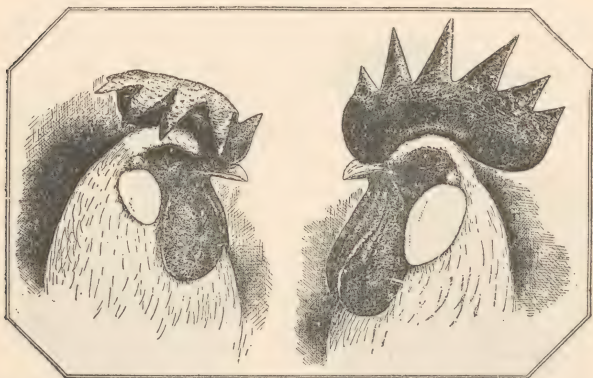


Fig. 48.—Birds mated for Cockerel Breeding (White Leghorns).

in Figs. 47 and 48 on sex mating in Mediterranean breeds will fully convey the meaning of these remarks.

In most of the marked varieties of poultry (and even in such breeds of ducks as Rouens) the necessity of double-mating to obtain the best results for exhibition males and females is unfortunately on the increase, much, we believe, to the detriment of the breeds concerned. We have dealt above with the

Mediterranean breeds in which headgear is largely the distinguishing factor in this system of double-mating, and in two more useful illustrations, taken from a coloured plate of Mr. Bates's Silver Wyandottes, published in *The Feathered World*, show the difference demanded in the two pens where marking is the point at issue (Figs. 49 and 50).

From the illustrations it will be seen that to court success the dual system of mating—that is, one pen for breeding exhibition cockerels, and another for breeding exhibition pullets—is imperative in the laced varieties of Wyandottes, and from this system of mating have sprung the terms cockerel-breeders and pullet-breeders.

It is essential that the greatest possible care be exercised in the mating-up of the breeding-pens, as it is on this point that a breeder's success rests. To mate a cock-breeding cock with pullet-bred hens, or *vice versa*, would simply mean that the breeding season would be practically worthless, for not a single exhibition specimen could be expected from such a union.

To produce exhibition cockerels, the male to be used must be an exhibition bird, or a bird meeting the requirements of such a specimen, and must owe his origin to a cock-breeding pen. The females to be mated to such a bird must be descended from a prize-winning strain of cock-breeders, and if from the same strain as the male, so much the better, as an out-cross is not always a success—at least, not in the first season.

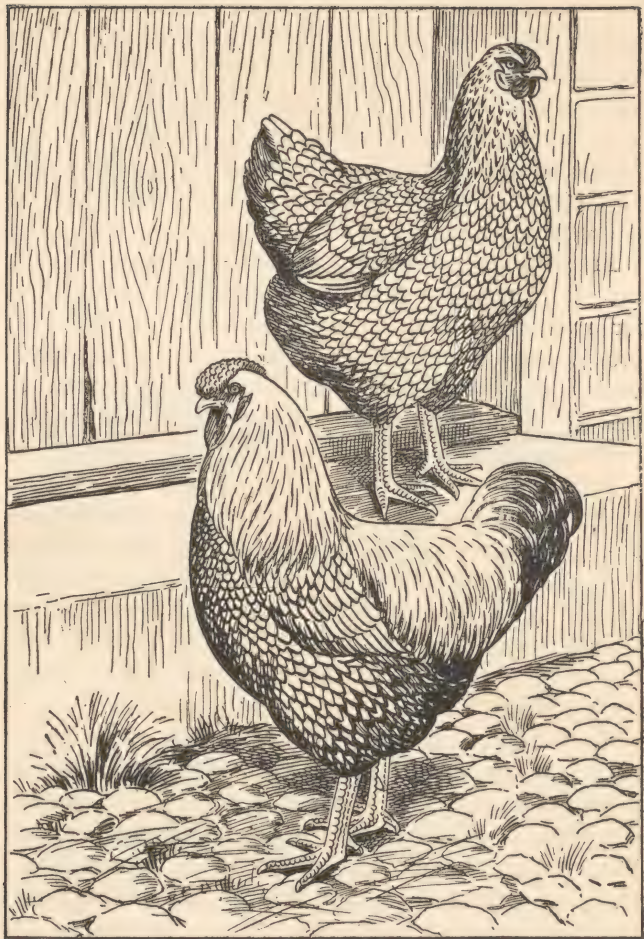


Fig. 49.—Pullet-Breeders (Silver-laced Wyandottes).

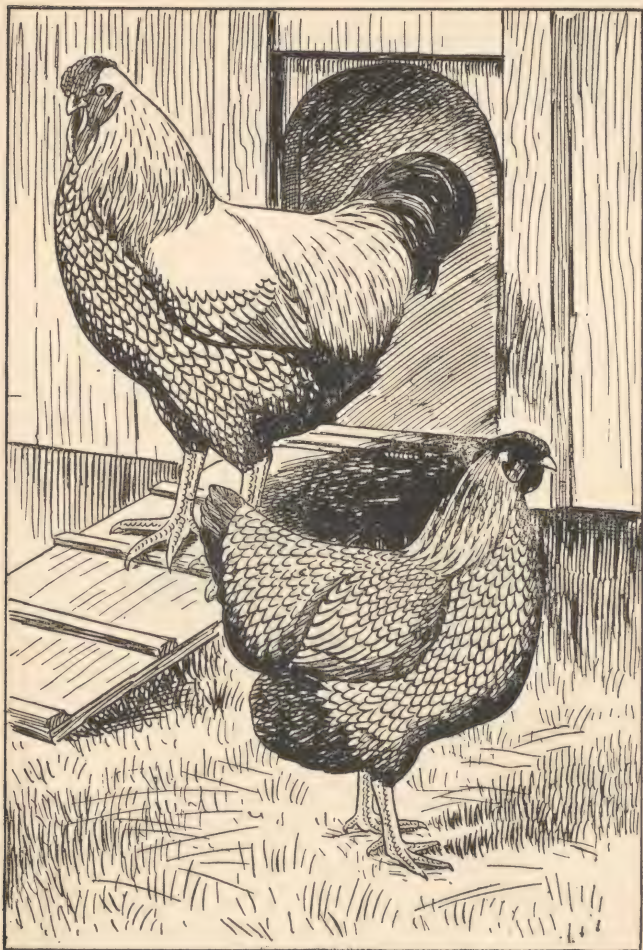


Fig. 50.—Cockerel-Breeders (Silver-laced Wyandottes).

To breed exhibition pullets a pullet-bred cock—that is, one bred from pullet-breeders—should be mated to exhibition hens or pullets or to birds owing their descent to such a source. Cock-breeding hens and pullet-breeding cocks are no use for show purposes, their only value being in the breeding-pen.



Chapter VII.

HATCHING : THE SITTING HEN.

WE will assume that the poultry-keeper has selected his breeding-pen, got his poultry-yard in order, his fowls safely housed, properly fed, and laying well. His thoughts now naturally turn towards hatching a few chickens, so as to secure a fresh lot of pullets for next year's egg supply, young stock for table purposes ; or, if an exhibitor, to test his skill as a breeder with chickens of his own raising.

With limited space the last will be somewhat handicapped as against the big breeder with plenty of fresh ground for his young stock, but it is wonderful how, by scrupulous care and cleanliness, success has been achieved in chicken rearing in quite small areas.

For the poultry-keeper in a small way, as already stated in our last chapter, day-old chicks are procurable ; and by purchasing these, he is saved the trouble of looking after the broody hen while sitting, and such disappointments as her turning out an indifferent sitter, the eggs proving infertile, or only a few chicks appearing at the appointed time.

Here it may be advisable to add that chicks are not all hatched the colour they will be when adults. For instance, the black varieties should be black-and-white when hatched to be of good colour when grown-up. It is, therefore, advisable not to write and abuse the vender if the black Leghorns, Orpingtons, Langshans, or Minorca chicks sent or hatched from eggs at first come black-and-white, for they will assume their proper colour at their first moult, and, generally speaking, the more white they show as chicks the better colour they will have as adults.

This by way of digression. To revert to the question of raising one's own chickens, we may add that any one who has time and sufficient space at command will find it a pleasurable and interesting pursuit.

The Time to Begin.—Except in the case of exhibition poultry for the summer shows, the best time is the natural one of the spring of the year—namely, March, April and May. The heavy breeds, as more slowly maturing, come in March, the lighter breeds following on in April and May. Timed thus, the March-hatched pullets should begin to lay in September or the beginning of October, when the old birds are in moult. Hatched earlier, say in January, there is always the risk that they will lay a batch of eggs and go into moult in the autumn, and not come on again to lay until the spring, and thus leave the poultry-keeper without eggs from either his young or old stock in November and December, when eggs are at a premium.

Spring Chickens.—If, however, the supply of chickens for table is an important point, it must, of course, be borne in mind that the earlier chickens are hatched the better prices they will fetch in the market; also that late autumn-hatched chickens, which come in at a time when game has gone out, and ordinary poultry are scarce, fetch perhaps the best prices of any reared throughout the year. As to these matters, however, a good deal depends upon the local market, the facts as to which can be ascertained by poultry-keepers themselves. For this purpose those very early hatched pullets which, after laying their batch of eggs, go into moult in September or October, should then be sold or killed, and not be kept until they begin laying again—the sole purpose for which they were reared, namely, autumn eggs for hatching early chicks, having been accomplished.

The Broody Hen.—When purchasing a broody hen, always go for her at night. A simple test of her quality is this: if, when a hand is placed under her, she ruffles her feathers and rocks her body, about she will probably sit well, but if she raises herself up she is better left where she is, as such birds are often indifferent sitters.

And now for “Biddy” the broody—when tractable a treasure, but when perverse one of the most irritating creatures imaginable. Hoping for the best, we will picture her as one of the right sort, though such are difficult to obtain in the early part of the year, when a “clucking” or broody hen is in great demand. Having been secured, she will require to be comfort-

ably settled in her new quarters. If valuable sittings are being purchased, it is always advisable to get the hen before the eggs. Eggs are usually dispatched within forty-eight hours; in the meantime you can give your "clucker" a few dummies or cheap eggs to keep warm, so that by the time the valuable eggs arrive you will have ascertained if she will sit closely and steadily.

The Nest.—The nest should, if possible, be made

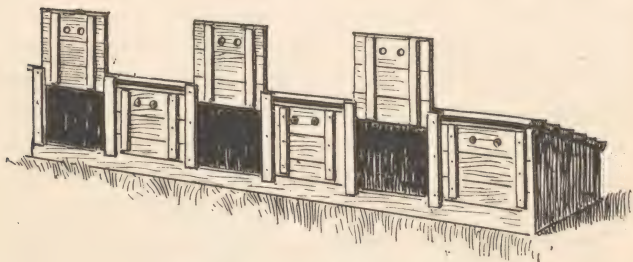


Fig. 51.—Set of Sitting Boxes.

on the ground, as the moisture drawn up by the heat of the hen's body is advantageous. If it is not practicable to construct the nest on the ground itself, the next best plan is to take two or three shovelfuls of earth and a sod, where it can be obtained, and with these construct a nest in the shape of a bowl or basin. This may be placed in a shallow box, or in one side of a box turned on its side and having a ledge about four inches wide nailed across the bottom to keep the nest in position. If desired, a door may be hinged on from



the top by leather or other small hinges. A box about fifteen inches square is very suitable. Tea chests, or something in that way, can readily be obtained for a few pence, and with but little trouble can be made to answer all purposes. Should the nest be made on the ground, a similar box, with the greater part of one side cut out and hinged on to make a door, can be placed over the nest. The material of the nest may either be of soft straw well twisted and broken in the hand, or hay; but, whatever material you use, see that all the corners of the box are well filled, so that no eggs can get down into them. The quantity of material required is just sufficient to cover the foundation to a depth of about an inch all over. A door to the nest box is very advisable, for it is best to shut the hens up so that they are not interfered with by other fowls and can come off only when released, which should happen at a given hour daily. They should then have a good feed of hard grain (maize and barley are good for a sitter), and they should be given fresh water and access to a dust bath. After the natural functions have taken place, the hen should be allowed to return to the nest, and, if reluctant, be gently shepherded back to her duties. All hens before being set on eggs should be well dusted with insect powder, and a good sprinkling can be given to the nest. Attention to this point minimizes the likelihood of the chicks being infested with insects later, a trouble which it is very necessary to avoid if you want good healthy chickens.

Size of Setting.—As to the number of eggs to be

put under a broody, that must naturally largely depend upon her size and upon the season, for in warm weather a hen can safely be given more than in the earlier months of the year. Twelve eggs are sufficient for a large hen, and even with her in cold weather a smaller number would probably give better results, for there

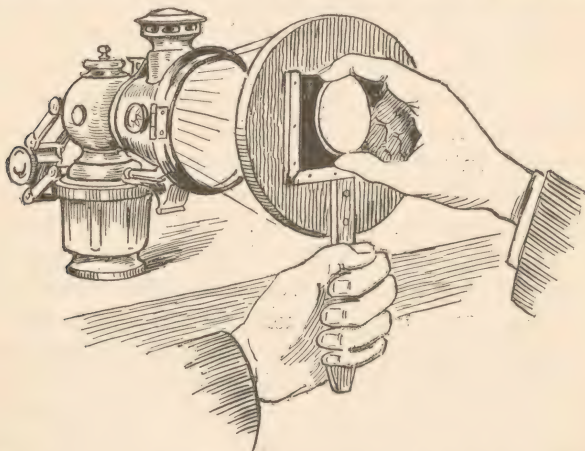


Fig. 52.—“Candling” an egg with a screen before an acetylene cycle lamp.

is always the risk of some not being completely covered and thus becoming chilled, and also the fact that even if all hatch out she may not be able to brood all the chicks properly.

Testing the Eggs.—After the seventh day the eggs should be tested. To do this, encircle the egg with the thumb and the forefinger, holding it length-

ways, and place it thus before a strong light, such as a candle or a bicycle lamp (Fig. 52). If it is quite clear and transparent it is infertile, but if streaked or semi-opaque then the germ has started to develop. Infertile eggs should be removed, for it is useless wasting the hen's time covering eggs that will never hatch: hence the reason for such an examination. The places of the infertiles must not be filled up with fresh eggs, as, of course, chicks, if hatched from these did the broody continue sitting, would be a week behind the others, and have little chance of growth. If, however, several hens are all set on the same day, the infertile eggs can be removed from each and replaced by fertiles from some of the other hens. The hens thus deprived of eggs can be then started *de novo* with fresh sittings, and their services thus utilized to the full.

As a good deal of ignorance exists as to what constitutes an "addled," "clear," or "fertile" egg it would, perhaps, be as well to explain the terms. A "clear" egg is one that has never been fertilized. If in an incubator, it should be removed at the seventh day, and used to feed the chickens on. An "addled" egg is one that has been fertilized, but has failed to hatch. The vender cannot be expected to replace addled eggs, except as an act of grace. They should be removed as soon as detected, as they give out noxious gases.

Clear eggs must be returned to the vender carefully packed, if they are to be replaced, as he cannot

be expected to accept a statement as to infertility without this proof.

Cleanliness.—If during incubation an egg is broken in the nest, it should at once be removed and all soiled eggs gently cleaned with a warm wet cloth. If the hen's feathers also are affected, cleanse these too, otherwise there is a risk of an egg sticking to her plumage and a fresh disaster occurring. Replace any soiled nesting material with fresh.

Warm Water Test.—Some poultry-keepers like to test their eggs again on the nineteenth day by inserting them in a bowl of water warmed to a temperature of about 104 to 106 degrees. Eggs which contain live chickens will then bob about in a curious way, and those with dead chicks usually sink to the bottom and remain motionless. This test is not an infallible one, and it is perhaps just as well to omit it and let the hen sit out her period of twenty-one days. With very fresh eggs and a close sitter chicks may make an appearance on the twentieth day; on the other hand, if eggs have been kept before sitting, or if the hen by any chance remains off the nest for some hours during incubation, hatching may be delayed a day or two later than the twenty-first day. For this reason it is never wise to throw the eggs away in such circumstances; let the hen sit out her time and a day or two extra, and very probably she will yet bring off a good proportion of chicks, especially if the lapse took place in the later stages of hatching.

We may be questioned as to the time that a hen

should be allowed off the nest when hatching. Our reply is that much depends on the weather. In very cold weather, ten minutes is ample; in hot weather, half an hour and even an hour would not matter; but a point to remember is, that if the hen has not access to grass wet with dew or rain, so as to get her feathers damp while off the nest, and the atmosphere is dry, the eggs a few days before hatching should be slightly sprinkled with warm water while the hen is off, or a flannel wrung out in hot water be placed over them. In very dry and hot weather, if the nest is on the ground, a bowl of warm water may be poured round the nest. The reason for this is that the damp keeps the skin-like lining of the egg soft, and thus the chicken can more easily force its way out.

Hatching-out.—When the chicks are hatching, they should be left with the hen if she is a quiet one; if fidgety, take the chicks from her as hatched and place them in a basket in flannel and put them near a fire, or, if you have an incubator, in the drying-box of this. When all the eggs are hatched, the chicks can be carefully replaced beneath the mother. They will not require food for twenty-four hours; because, just before hatching, the chick draws up into its stomach the yolk of the egg and thus is supplied with sufficient nourishment to last for its first day of existence. Its feeding thereafter must be the subject of another chapter.

Disturb a hen as little as possible, says Mr. Comyns, while the chicks are hatching; but if, at the end of the

full twenty-one days, eggs which are chipped have not hatched-out, a little of the shell may be removed from the point at which the egg is chipped. Care must be taken to remove it gradually, the operation being stopped the instant any blood flows. The natural process by which the chicken frees itself from the shell is first to crack the shell at one point, and then turn a little round and crack it farther on, proceeding in this way until it has gone about two-thirds of the way round, when it can usually, by a vigorous push, shove off the top of the egg and gain access to the outer world. Any attempt to give assistance should follow the same lines. If no blood is apparent, the shell may be cracked all round by gentle blows with the finger-nail and the egg then returned under the hen. If there are eggs which are not chipped at all, it is best to open them with a penknife over the air bubble, and when a small hole has been made, let a drop of water fall on the lining membrane. It will quickly spread over it and render it transparent. It can then at once be seen, either by the movements of the chicken or by the blood in the veins, whether the chick is alive and fit to hatch out. If there is movement, and at the same time blood visible, a small bit of stamp paper should be pasted over the aperture and the egg returned to the hen. If no blood is visible, further help may be given.

If the eggs set under the hen were not all of the same age, even if the broody be a quiet one, it may be necessary to take away the earlier chicks as hatched and keep them warm as advised, for otherwise the hen

may go off the nest with the chicks and desert the eggs which remain.

Combining Natural and Artificial Incubation.

Many poultry-keepers combine natural with artificial incubation, running several broody hens up to the last week of incubation ; or even, as one successful lady does, up to the nineteenth day, and then removing the eggs and finishing them off in an incubator. The broodies, if close sitters, are then given a fresh batch of eggs and the process is repeated.

One advantage of this method of hatching chicks is that—especially in the earlier part of the season with highly bred stock when germs are weak—a hen will often succeed in developing a higher percentage of “hatchable” eggs than a machine. The latter will, however, quite satisfactorily finish off the good work of the “broody.” Another advantage is that incubator-hatched chicks are naturally much less liable to insect troubles than those left to hatch out under the hen. Moreover the services of good broody hens are also thus utilized to the full, and, on the other hand, the presence of an incubator is always useful in the event of any broody deserting her eggs, or meeting with an accident.

The rearing of artificially hatched chicks is, of course, much simplified by the many excellent brooders now on the market, and thus the system here mentioned is easily adopted.

Chapter VIII.

ARTIFICIAL INCUBATION.

THERE are two types of incubators—(1) the tank or hot-water machine, and (2) the hot-air. Both have their ardent supporters, and both when properly worked give good results. In this country, perhaps, hot-water machines are the more used, whilst in America the preference appears to be for the hot-air incubator. In favour of the former there is a fact that will appeal perhaps to the novice and the busy man—namely, that should he unfortunately forget to fill the lamp with oil, or should it go out through faulty trimming (both points necessitating regular daily care), the body of hot water present in the tank will keep a fair amount of heat up for some time after the lamp goes out, and the eggs thus may not become chilled before the oversight is detected, as would be the case with a hot-air machine. Moreover, for the same reason a tank machine is better able to stand the sudden changes of outside temperature so common in our variable climate, the heat from the tank having a steadying influence. Against this advantage has to be set the possibility of tanks leaking after much use.

Still, when all is said, given a reliable machine of either type, with a proper thermometer and regulator, there seems little to choose between them, and the buyer can well be left to his own preference in the

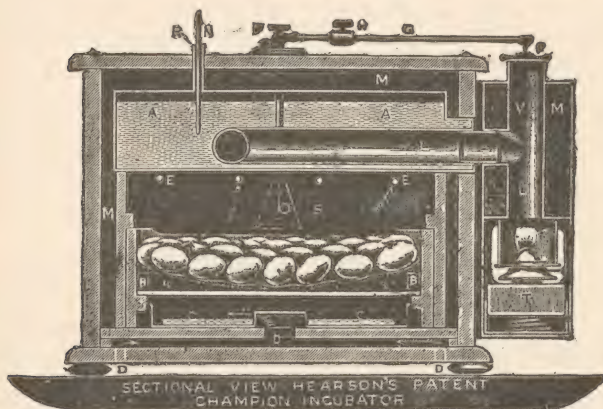


Fig. 53.—Hearson's Incubator. By kind permission of Messrs. Spratts, Ltd.

AA, Hot water tank. BB, strips supporting tray KK. CC, water tray. D, no air enters here, but passes through a coarse fabric kept wet by dipping into CC, and out through the upper ventilating holes EE. F, damper on top of V. G, lever. H, sliding weight to adjust F. KK, movable egg tray. LL, flues from lamp T. M, non-conducting packing. O, rod pressing on top of S, and transmitting expansive motion to P. S, thermostatic capsule. V, lamp flue on chimney. W, flue from chimney to air.

matter. Let him, however, never be tempted by mere cheapness, for good finish, sound materials, and workmanship all demand their price, and all are necessary to make a machine prove a successful hatcher. Inquiry

amongst poultry-keeping friends, or amongst fanciers at shows, and a study of the advertisements in the fancy press will soon acquaint the novice with the names of the principal makers, and he can either buy a new one, or perchance secure one second-hand through an advertisement in *The Feathered World*. In the latter case, it should be stipulated that the machine be had on a week's approval, the money being deposited with the editor, so that the incubator can be tested properly. The usual arrangement is that, if the machine is not approved of, each party pays carriage one way.

For the poultry-keeper who only wishes to rear a few chicks, an incubator, except as an interesting pastime, is hardly worth while buying, for the natural process is simpler ; but where any number of chickens have to be reared, then incubators become a necessity. When selecting a machine it is well to remember that an incubator of medium size will usually give better results, even if not filled to its full capacity with eggs, than the small size filled to its utmost, and may also prove of more use later as the hobby or business develops.

All good firms send out the fullest instructions with their incubators, and these should be carefully studied and followed, for presumably these experts should know the best regulations to lay down for their successful management.

Housing the Incubator.—The incubator obtained, care must be taken that it is suitably housed. The

ideal room is one which, whilst well ventilated, is not subject to great variations of temperature. For this reason one of the largest incubator rooms in this country which we visited some years since always remains in our memory as ideal for the purpose. This was on Miss Edwards's farm at Coaley, Gloucestershire, and was an old cider cellar, half sunk beneath the ground, but lofty, with windows shaded on the south side from the sun by trees, and its northern wall protected by buildings attached to it. Ventilation was secured by well openings in the ground outside, on the southern side, and running down to the floor were inlets so arranged as to avoid direct draught, whilst the bad air and fumes generated were carried off at the top. Such a place, however, is not within the reach of all, but it is mentioned as an example to be aimed at.

Probably most readers will have to put up with an outhouse or shed, or even a corner of a room, for their incubator; but wherever it is placed it should be kept free from draughts, in an even, well-ventilated atmosphere, and vibration and sudden shocks should be guarded against as far as possible. The machine should, moreover, not be placed against a wall, but about a foot away, so that air can circulate all round it.

Starting.—When the incubator is in position, it should be set going and worked for a few days without any eggs, so that the operator may become acquainted with its management, and the machine not only be tested, but become thoroughly warmed for the eggs.

To do this, the lamp may be run with a larger flame and the water heated to a higher degree than when the eggs are in. As soon as the machine is properly adjusted and the heat keeping steady, the temperature must be brought down to that required for the eggs. Good results will be obtained by working at between 103° and 104° , or by starting at 102° and increasing a degree every week, so that the last week the thermometer registers 104° Fahr. It is important that the thermometer be tested for accuracy before being used. If no reliable one is at hand to compare it with, a friendly chemist will doubtless be pleased to make the test. As incubation proceeds care should be taken that the thermometer, if a loose one, rests on a fertile egg; for if on a dead or addled egg, or upon a clear or infertile one, it will register less heat than if placed upon an egg containing a living germ, which naturally is giving off heat itself. To obviate this risk, in many modern incubators the thermometer is fixed with its bulb in line with the level of the eggs, and thus a better idea of the actual temperature of the egg chamber is obtained.

Testing.—Eggs in incubators should be tested twice—namely, on the sixth or seventh day and on the twelfth. As the subject is one of importance, we will repeat the answer given to a querist in our paper which sums up the method and the reason for testing.

“Eggs in incubators should be tested for fertility on the sixth or seventh day. White eggs can easily be tested on the fifth or sixth, but dark-brown eggs on

the seventh or eighth. Duck eggs can be detected even earlier owing to the transparency of their shell. On the twelfth day they should then be tested a second time. The object of testing is to remove sterile eggs, which, as incubation progresses, tend to reduce heat in the incubator, and, above all, to remove addled eggs, that is—those with dead germs, the fumes from which are dangerous to the healthy embryos. The best method of testing is with a proper egg-tester, but with experience good results can be obtained from holding the egg in the hollow of both hands before a strong light. Infertile eggs will then appear perfectly clear, and can be removed and be used either for cooking purposes or for feeding young chicks. Addled eggs are more difficult at first to detect from the fertile, but at the latest test, as Lewis Wright puts it, ‘A sort of floating dark mass, surrounded by transparency, will spell “addled” to the tester.’ Doubtful eggs should be marked, and, by watching the result from these, beginners will soon acquire the knowledge necessary to sift out the good from the bad. It is not advisable to replace withdrawn eggs by new ones.” A good incubator, Mr. Comyns says, should contain efficient provision for the supply of moisture to the eggs. The regulation of the supply differs with the machine. The quantity depends on the state of the atmosphere—in cold or dry weather more moisture is required than in wet. The size of the air space at the top of the egg is a good guide. This should gradually increase in size, until at the nineteenth day

it seems to occupy from one-sixth to one-fourth of the contents of the egg. If it develops too rapidly, the eggs require more moisture; if the air space develops too slowly, decrease the supply of moisture and give more air.

Turning the Eggs.—The eggs must be turned daily, and in order to be quite sure that all are turned it is advisable to put a cross on one side and another mark on the opposite side, so that no difficulty will be experienced in deciding when all have been turned. The turning process is very simple, as after a little practice it can be done by running the fingers down each row. The turning should be done at about the same time every twelve hours.

Once every twenty-four hours after the first day the egg drawer should be removed and the eggs aired exactly as when the hen leaves her nest. The duration of this airing must vary according to the outside air temperature and the stage of incubation. In cold weather a few moments will suffice; and eggs just started incubating require less airing than those just finishing.

The late Mr. Proud always advised during the first week an airing of just so long as it took to turn the eggs, or about five minutes; for the second week about ten minutes; and for the remaining period as much as a quarter of an hour. As regards moisture, he never recommended its addition until after the twelfth day, and then by simply damping the canvas contained in the egg tray, and keeping this moist

during the remaining period. On the twentieth day he advised that after airing the eggs a piece of flannel wrung out in warm water should be laid over the eggs, the drawer closed for ten minutes, and then the flannel removed. This method we know to have been most successful.

One of the times for turning the eggs can be when they are being aired, for then the egg drawer would only be opened twice in twenty-four hours.

Resist, as advised, the temptation when removing the infertile and addled eggs to fill up the drawer again with fresh eggs. If you cannot restrain yourself, or have so few good eggs left in as to make refilling almost a necessity, warm the fresh eggs before introducing them, and for twelve hours keep a strip of warm flannel between them and the eggs previously put in.

The Newly-hatched Chick.—To obtain the best results from incubators, fresh eggs—that is, not more than forty-eight hours old—should be used, and as far as possible all of the same size. Never mix duck and hen eggs together, as they take different times to hatch and require different temperatures. As the chicks hatch they should be put in the *drying-box*, which is a division with a glass lid on the top of the incubator. After twenty-four hours the chicks can be transferred to an *artificial brooder*, or else to broody hens to rear. Even in these enlightened days there are people who think that hens will not rear incubator-hatched chickens, but to prove that this is only an

“old woman’s tale,” we may state that thousands of chicks hatched in incubators are sold as “day-olds,” sent long distances by train, and successfully reared by a strange “mother.” Moreover, a good many breeders use incubators for hatching, but rear almost entirely under hens. Of course, the younger the chicks are introduced to the broody the more likely she is to take to them, and they should be all of a size. They are best placed under the hen after dark, and in most cases she will mother them as readily as if she had hatched them out herself.

Artificial Brooders.—For those who adopt artificial methods there are many good brooders or rearers on the market. They consist of a heated chamber and a small covered-in run protected more or less from the weather (Fig. 54). It is well to avoid the use of glass for the top of a rearer as it forms a sort of hothouse, which is not at all conducive to health; any light necessary can be admitted at the sides. What chicks need is good food and a warm place to sleep in and to resort to when they like, and, above all, to be kept dry and clean. Avoid concrete or boarded floors for the run unless deeply bedded with peat-moss or litter, for otherwise chicks soon lose the use of their legs. Mother earth is the best surface for chicks to run on, but it must be kept dry and clean. A very *simple form* of brooder can be made out of a round box heated by an ordinary hurricane or stable lamp with a fine wire protector placed all round it, so as to prevent the chicks coming too close to the glass, but



ROAD LANGSHANS

care must be taken that the fumes of the lamp are carried away to the outside air, as otherwise the chicks will soon be suffocated.

Regulating the Heat.—As regards heat, the following extract from “Poultry for the People” gives the matter in a nutshell: “The proper heat in the

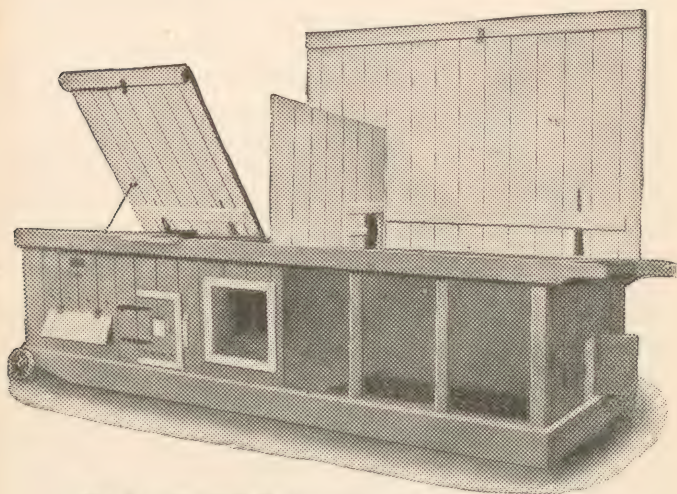


Fig. 54.—Tamlin's Foster-mother or Artificial Brooder.

sleeping chamber is, too, a matter for the judgment of the operator, for as the chickens grow less heat is required; starting about 90° , the heat can be gradually decreased to 65° . However, the chickens themselves are a better guide than the thermometer: if they crowd and huddle together, seem restless and

cry plaintively, they are too cold ; if they often come to the outer air and pant for breath, they are too warm. On no account overcrowd the rearer ; this is the most fatal mistake which can be made ; remember, if a brooder be comfortably filled with fresh-hatched chickens it will be very much overcrowded in ten days' time owing to their growth in size. Nor must the chickens be pampered ; it is better for them to have too little artificial heat than to be made tender and liable to cold, and perhaps inflammation of the lungs, by being put into a rearer, which, through overheating or defective ventilation, is liable to get to a high temperature. What chickens require is a rearer to which they can run in the daytime and get warmth as they would from a mother hen."

In big establishments the brooders are generally placed in large, well-lighted brooder houses divided into compartments. The chickens thus have the benefit of a sheltered indoor run, outside the brooder or hover itself ; and a door in the side of this run, opened in favourable weather, gives them access to a grass run outside. Some of these brooder houses are splendidly adapted for the purposes of raising early chickens. One which we saw recently was seventy-five yards long by twelve feet wide, with windows let in at intervals on one side giving ample daylight, the opposite side to the south being boarded half-way up and then wire netted, so that thorough ventilation was secured. Canvas shutters, arranged so as to loop up to the roof when not needed, are let down in

very cold weather or to keep out driving rain or snow, for brooder chicks must be kept dry. Another feature of such houses is that they are lighted either electrically or by gas, so that the long winter nights are shortened for the chicks, and they can be fed early and late in comfort by the attendant, irrespective of outside weather conditions.

Fireless Brooders.

In recent years quite a number of practical poultry-keepers have discarded the artificially heated brooder altogether, and relied upon the heat generated by the chicks themselves beneath a coverlet in the brooder chamber as sufficient to take the place of the mother hen.

This system has its advantages undoubtedly, for there are no lamps to trim or to go wrong, no risk of fire or suffocation of the chicks from a faulty lamp ; and chickens thus raised are, through the absence of coddling, very hardy and feather remarkably quickly. At a large poultry farm in Kent, belonging to Mr. W. M. Burnham, which we visited in the spring of 1912, we saw these cold brooders in operation on a large scale, for some five thousand chicks were being raised annually. The first stage of the cold brooders here was a room wherein the chicks are placed after being taken from the drying-box of the incubator, and where an attendant was busily engaged looking after several hundred baby chicks. Each group had for their run a table

edged with a little wire fence and covered with peat-moss litter. At one end of the run was a square box, in which was inserted a circle of zinc without cover, and with ample ventilation holes at the sides and an entrance for the chicks. This inside zinc chamber, made circular so as to prevent the chicks crowding into corners, is bedded with chopped straw, the depth of which varies with the heat required, and above the chicks is a light framework of loose canvas upon which rests a coverlet lined with cotton wool. The space between the zinc and the wood outside is either packed with straw or left open according to temperature.

In this room, until they are three days old, the little chicks alternate between sleep and meals every two hours in the daytime, and learn to feed and scratch before transference to the outside brooders. Three days here are usually found sufficient for ordinarily strong chicks. A feature of Mr. Burnham's system was that fine grit, charcoal, and bran are always present before the chicks, and are taken freely in addition to the other regular feeds.

The next move for the chicks is to the outside cold brooder, which is glass-fronted on one side so as to admit light to both the inner brooder chamber and the outside run into which the appliance is divided. There is a double roof, an outer one of wood and an inner framework covered with wire over the run and with canvas over the brooder end. Both roofs are hinged so as to be lifted up at pleasure according to weather

or temperature. The inner chamber, or hover, of the brooder is, like that described above, a ventilated box with a lid and the same method of coverlets. About thirty chicks are allotted to each brooder. When from five to six weeks old they are ready (after being gradually hardened off by reducing the litter in the brooder chamber and leaving off the coverlet in the later stages) for removal to the ordinary houses and runs.

Care has to be taken that the chickens do not sweat or get too warm in the brooder chamber; the height of the coverlet from their bodies and its thickness must be regulated accordingly. In this connection we may mention that on the farm of another large poultry-breeder where fireless brooders were also in use, we learnt that a good way of detecting whether chicks are overheated is to watch the edge of the wooden frame of the brooder cover. If, on taking this off, any steam or damp can be detected, the coverings should be reduced at once. The worst trouble with fireless brooders is damp; therefore during the period from November to February, when the atmosphere in these islands is most heavily charged with moisture, the greatest care is necessary in this operation. Indeed, some poultry-keepers say that it is impossible to rear chickens profitably in fireless brooders till March comes in.

Chapter IX.

MANAGEMENT AND FEEDING OF CHICKENS.

IT is now pretty generally known that chickens do not require any food for twenty-four hours after hatching, so we hope that the old wives' tales as to the administration of peppercorns to "warm their stomachs" and the picking of the horny scale from the tip of the beak have, like many other old-fashioned ideas, been proved to be not only unnecessary but also very cruel. Moreover, the less the broody hen is interfered with whilst hatching out the chicks the better for her, unless she be fidgety or awkward, and there is a risk of the chicks being crushed, in which case they can be removed until all are hatched, and be kept warm in a basket lined with hay or flannel, and placed in the kitchen or a warm room until all are ready for removal with the broody to a coop. With incubator-hatched chicks all that is necessary is to place the chickens in the drying-box of the incubator until ready to transfer to the artificial brooder or to introduce to a broody hen. In either case the method of feeding described here will apply equally well.

Accommodation.—As soon as the broody has fin-

ished hatching, give her a good feed of maize, and water to drink—not forgetting grit—and remove her and her brood of chickens to a *clean* coop. The style of coop does not matter so long as it provides plenty of room and ventilation. It is advisable for it to have a wooden floor if vermin are about, the soil is damp, or the weather is cold or wet ; but the boards should be covered about an inch deep with peat-moss, dry earth, sand, ashes, or with chopped straw, hay, or chaff, which should be cleaned out frequently and renewed.

Later on in the chickens' growth the ground can form the bottom of the coop if the situation is dry and there are no vermin troubles, the coop being moved to fresh ground daily. The coop should be barred in front, so as to pen the hen in and yet allow the chicks to run in and out freely. At night a shutter should be fixed to the coop, with ventilation provided by means of a piece of perforated zinc let in at the top and bottom of this shutter, so as to admit plenty of air, but exclude unwelcome intruders, care being taken that the ventilation openings come between two of the slats forming the front, as otherwise no air would get in or pass out. While the chicks are small, it is better to put a small covered-in wire run in front of the coop, so that they cannot stray far from their mother, and will be protected from hawks, crows, and cats. This run and the coop should be moved daily if possible, so as to prevent the ground becoming stale, for nothing is better for young stock than fresh, unsoiled grass kept cut short, so that they shall not get wet and draggled.

Feeding.—It is sometimes difficult to induce artificially hatched chicks to eat, but if an older chicken is placed with them they will soon learn to imitate it; or, if the ground is tapped with the finger and a noise made similar to that of a clucking hen, the difficulty will soon be overcome.

The food of the first day after hatching should be hard-boiled eggs, mixed with stale bread-crumbs or oatmeal. This must be given every two hours—only as much as the chicks will eat readily then. It is important that no soft food of any kind should be left over, for it soon becomes sour and tainted, and thus causes bowel troubles and other diseases. All soft food should be given in china or glazed dishes or on boards, which can be easily cleaned; only hard corn should be thrown upon the ground, except on free ranges, and then it must be seen that all soft food is picked up. Fine grit for the chicks, and clean water, well shaded from the sun, must always be available for them, unless they have access to grass, from which they can sip the dew, or are provided with milk to drink. As it is not necessary for the broody hen to have the same expensive foods as her chicks, she can be fed with corn in her coop, the chicks being fed in the run outside. Remember grit for the broody hen and water, and see that her coop is kept clean, and that she has a run out and an occasional dust-bath and sprinkling with insect powder.

The menu for chicks which follows is that advo-

cated by the late Mr. Proud in our paper and in his useful little book, "Management of Chickens," and which, like the feeding menus already given for adult stock in chapter v., has stood the test of years most successfully.

The chicken-raiser to be successful must be an early riser, for young birds do not want a twelve-hours' fast daily. For this reason, when the days are short, the chicks should be given a meal by candle light at night, and again not later than 7 a.m. in the morning.

On the second day let the first feed be of some good brand of chicken or game meal, scalded and allowed to cool. Two hours later give them more of this, and again after another two hours a feed of bread and milk—that is, bread soaked in milk. The fourth meal should be of oatmeal, mixed with cold milk into a crumbly state; and the next two meals should be like the first, with broken chicken rice boiled and added. The rice should be boiled for fifteen minutes, then allowed to cool, then rubbed through fine oatmeal. Only sufficient rice for each meal should be rubbed through, as when mixed with the oatmeal the rice does not remain sweet so long as when kept separately.

This diet should be continued for two weeks. Then use biscuit meal, scalded and mixed with oatmeal and middlings. This mixture is to be given at all meals during the day. A little animal food may be given on alternate days at noon, but very spar-

ingly at first, because the meat is likely to cause diarrhœa if given too generously. If looseness of the bowels is noticed, stop the animal food, and feed chiefly on oatmeal mixed with milk and bread and milk alternately.

When the chicks are a fortnight old, the last feed at night should be small wheat or broken wheat and brown (not floury) groats, or some good dry chick food. As advised earlier, this meal should be given as late as possible, so as not to keep the growing stock long fasting.

Where chicks are confined and cannot get fresh grass, they should have finely chopped grass or lettuce daily; but only as much as they will eat, since if tainted by being trodden it is likely to cause trouble. Flint grit should be administered all along, but, of course, at first it must be very fine.

When four weeks old the chicks should only be fed five times a day, and the rice be omitted; but as the chickens should then be growing fast and making bone, they should have good sound wheat or groats as late as possible every night. It is very important to keep chickens growing, as any check they suffer is never made up. If the chicks appear to be rather weak on their legs, add a little bone meal to the soft food, and fine "green" bone too at the noon feed. We have explained what is meant by "green bone," but it may be as well to repeat that it consists of fresh bones either ground up in a bone-cutting machine or smashed up with a hammer into a pulp.

At from six weeks to two months pea meal should be added to the oatmeal, and fine middlings comprising the soft food for two or three feeds during the day ; but always give sound wheat or groats for the last feed at night.

At six weeks the chicks will be able to do without their mother. If the nights are cold it is well to put plenty of hay at the bottom of their sleeping coops to keep them warm ; this also will help to keep their breast-bones straight.

Separating the Sexes.—When they are ten to twelve weeks old the sexes will be distinguishable. The cockerels should now be put in a house and run away from the pullets, which will also need fresh quarters, as they thrive better when separated. If the cockerels do not agree well together, an old cock placed with them will soon make matters run smoothly. About now the birds will begin to want to perch, so it is necessary to see that suitable perches are provided. All heavy and feathered-legged breeds should have a flat perch about four inches wide, bound round if possible with old sacking or canvas, to make a soft place for the breast-bone to rest on. The perches should not be placed high up, as flying down from a height to the ground in confined quarters often damages the breast-bone as well as the feet. The perches, moreover, should all be arranged on one level, to avoid squabbling and crowding, for fowls always go for the highest perches. Round perches are necessary for such breeds as Game or any hard-

feathered varieties. The floor of the sleeping-house should be covered with some soft material, such as peat-moss litter, dry leaves, chopped straw, oat cavings, etc., so that the birds shall not have a hard surface to alight on. This material should be raked over frequently. If dropping-boards are placed beneath the perches and cleaned daily, the litter will keep sweet for months at a time, if thoroughly dry. Paraffin poured on the perches will help to keep red mites and other insect pests down.

An ingenious system of perches is that adopted in the roosting-houses on a well-known Yorkshire poultry farm. In these the floor of the house consists of wooden removable bars about one foot apart and two feet from the ground. The birds enter at the level of these perches, and easily hop from one perch to the next; there is no overcrowding; the droppings fall on to the litter below, and are easily raked out at the back, and (a point of some note where vermin abound and young stock are housed) rats have a decided objection to crossing this arrangement of perches.

As soon as the birds are able to perch, the soft food can be reduced somewhat. The first feed and that at noon should be biscuit meal, scalded, and allowed to stand a bit, and then mixed to a crumbly state with equal parts of oatmeal, pea-meal, and middlings. At noon a little fresh green bone can be added. The last two meals should ring the changes on some good sound corn, such as red wheat, Canadian peas, and

groats—for fowls, like human beings, do not always relish the same food every day. This menu may be continued till the birds are six months old, when three meals a day will suffice until they are matured. As variations to the soft food in these later stages, boiled oats, wheat, or paddy rice (that is, rice with the husk on—much more nutritious than the ordinary rice) can be given.

Opinions differ widely as to the advisability of giving or not giving baby chickens water to drink. Some people say that chicks should not have water, and others hold that they should be allowed free access to water. This seems the more natural plan, but take care that the water is clean and shaded from the sun. If chicks are allowed out early to run on grass, they probably get sufficient drink from the dew, and also a certain amount in their food. Where it is obtainable, a capital plan is to give them fresh or skim milk to drink three times a day, taking it away when they have had sufficient. As they grow older, the milk may be left with them; but it must not be allowed to turn sour or tainted, or bowel troubles are sure to follow. It is the intermittent or irregular supply of drinking water which, we think, causes the trouble of chickens drinking to excess, for where it is regularly before them they rarely suffer in this respect.

The Dry-food System.—As an alternative to the above method of feeding, there is what is called the dry-food system, which, on account of its simplicity,

many people adopt, giving the chicks combinations of various grains coarsely crushed or ground for the first fortnight, and then going on to the smaller grains, such as wheat, buckwheat, dari, or millet. This dry chick food can be obtained from various advertisers, and certainly has many advantages for the busy man or woman. From the fact, however, that the other method is that more largely used by the big breeders and exhibitors, we fancy that their experience leads them to think that the extra trouble entailed by soft food is justified by earlier maturity and better development of their young stock. The dry-food system can be usefully combined with that described earlier in this chapter by alternating meals of dry chick mixture with those of the soft food.

In this respect each individual rearer must use his own common sense, and adopt the method which he finds most successful for his peculiar circumstances. One thing is certain: that dry food is preferable to sour or stale soft food, and those who are engaged in business all day, and have no one to whom they can trust their chicks in their absence, will find the dry method very advantageous, and far more likely to be carried out willingly by other feeders during their enforced absence.

Rearing Troubles.

No chapter on chicken-rearing would be complete without allusion to some of the troubles of the period.

For many of these prevention is not only better but easier than cure ; wherefore, at the risk of perhaps being tedious, we have urged the necessity of cleanliness.

Insects.—Dirt too often spells insects and disease. For this reason the broody hen and her nest should, before the chicks left the shell, have been scrupulously cleaned, and the hen rid of insects by insect powder and dust-baths. The coop into which the hen and chicks are removed should, since last being tenanted, have been thoroughly disinfected and cleaned out ; and, as the chicks grow, they and their mother should occasionally be dusted with insect powder to keep them free from pests. Artificially brooded chicks will require like attention. Whenever a chicken looks mopey and does not thrive well, it will often be found that red mites, ticks, or chicken lice are causing the trouble. These can be quickly got rid of by dusting the bird with pyrethrum powder or flowers of sulphur, especially around the vent, and, in the case of ticks (usually to be found on the head or neck), by applying a little carbolized oil very cautiously, so as not to irritate the tender skin. The trouble entailed in such care may be considerable, but the reward in the vigour and health of the chicks will more than compensate for it. The provision of proper dust-baths, in which flowers of sulphur or insect powder has been sprinkled, will do much to keep insect pests away.

Cramp.—Another frequent trouble with the chicks

is cramp and leg weakness, which is more common amongst artificially reared chicks than those reared by hens. The cause is not far to seek—the hard, boarded floors of rearers, and excessive heat and lack of ventilation in the brooder chamber. As a preventive, keep the floors well bedded with dry earth, put peat-moss litter or chaff thereon, give the chicks on all favourable occasions a run outside on bare earth or grass, and lessen the heat in the brooder chamber.

Where the chicks have already become affected, Mr. Proud's advice was to hold the chick's legs up to the hocks in water as hot as the hand can bear, and to which a little soda has been added. Thoroughly dry them, and rub in a little embrocation.

Another cause may be lack of stamina in the chicks. In such cases ground bone will be a useful addition to the diet at one of the daily meals.

Gapes.—Chicks reared on dry untainted ground, and with access only to pure clean water, should not be troubled with this malady, the gapeworm being usually a product of damp soil and foul water.

The dangerous age for this malady is from about a fortnight to eight weeks, the symptoms at first being gaping and opening of the mouth, and later on coughing and sneezing, as if in an effort to expel the worms from the windpipe, in which they attach themselves. The old and probably best-known remedy is to put a feather dipped in turpentine, or even in soot, down the bird's throat, turn it



W. L. H. H.

PLYMOUTH ROCKS
(BARRED)

several times, and withdraw it, so dislodging and bringing up the worms. This remedy, being of a rough-and-ready order, has its danger in possible injury to a delicate organ; and, moreover, when a number of birds are affected it is too tedious. The following may be given as alternatives which have been used with success:—

1. Shut up the birds affected in a linen-lined exhibition basket or box, close it except for a small aperture, through which puff strong tobacco smoke until the receptacle is full and the chicks cough and sneeze. Watch that none succumb through choking, and remove any that show symptoms of collapse. If the floor of the basket has been lined with white paper, many worms will be found to have been coughed up. These should at once be burnt, to avoid further infection.

There are several advertised remedies, most of which are based on the same theory as the above. Other simple ones are:—1. Place the chicks in a coop, and slake some lime therein, and stir it well so that the birds will breathe the fumes given off.

2. Divide a large box into an upper and lower compartment, place the gape-infested chicks in the upper story, and burn some carbolic acid in an iron saucer in the lower. The fumes from this pass up through holes in the floor to the birds, and have the same effect as those of sulphur and lime, and the same careful watch must be kept whilst the birds are undergoing treatment.

To prevent a fresh outbreak, remove the birds to fresh dry ground, and, before running stock again on the tainted ground, give it a thorough dressing of lime and a rest.

The late Mr. Lewis Wright, in a long and interesting article on gapes in "The Book of Poultry," mentions as an indirect cause of infection in this disease the chicken tick, and for this reason suggests as a preventive the advisability of applying a mild mercurial ointment to the top of each chicken's head as taken from the nest—a course also recommended by Mr. Comyns from his experience.

Roup powder or camphor in the drinking water is also useful in case of an attack of gapes as a preventive of fresh infection; but the important thing is to remove the birds from the tainted ground and access to foul water.

Bowel Troubles.—These are almost always the result of injudicious feeding, or of allowing the chicks access to tainted, stale, or sun-heated water, a very fruitful cause of enteric and ordinary diarrhoea. Old or sour soft food left about and picked up when soiled by the birds' droppings, meals kept in damp places, stale green bone cuttings, decayed vegetables or fruit left in the runs, and even broken or whole corn kept too long in bins and become musty, or running chickens on land already "fowl-sick" by being overstocked, are all sources of trouble which can be avoided. If these causes are given a wide berth, and the feeding menus already mentioned are

followed, little trouble from enteric or diarrhoea should occur with the chickens.

If cases arise, isolate all birds so affected, and feed them on crusts of bread prepared by soaking them in cold water, squeezing the water out, and pouring boiling milk over them. In very severe cases, add a little salad oil to soothe the bowels. Alternative diets are: (1) rice boiled for fifteen minutes, then placed on the side of the stove for a while, and mixed with a little milk before being given; (2) fine oatmeal, mixed to a crumbly state with milk. In the case of birds affected by bowel troubles, the droppings often accumulate round the vent, and if not removed form a hard mass, and cause much pain. This is a symptom of the disease, and the bird should be treated accordingly, the vent and feathers being bathed with warm water, the dirt removed, and the parts anointed with sweet oil to allay the irritation present.

In this and other diseases—except when other remedies are given in the drinking water—a little permanganate of potash, just sufficient to colour the water, is a useful and harmless disinfectant.

Other Ailments.—Other diseases, common to young and adult stock alike, are treated in chapter xvi., so we close these notes on chicken-rearing with a few general warnings.

The grass in runs for chickens should be kept *short*. The birds will fare better and the grass last longer and become less foul than if left to grow rank and long.

Chickens, whether reared under a hen or under a brooder, can stand fresh air better than foul ; so see that the coop or brooder has ample ventilation without direct draught.

Watch your birds for the first symptoms of disease, and take steps to remedy it in its first stages, and so avoid its spreading to the other chickens. In all suspicious cases of cold or roup, isolate the affected birds, and give roup powder in the drinking water of the rest of the flock as a preventive, besides treating the invalids as advised.

Keep a sharp eye on any bird which mopes about, is listless, and does not hurry to be fed at each meal-time, for healthy youngsters should always be waiting and ready for the feeder. See also that each chick gets a fair share, for otherwise the weaker ones will become still more handicapped in size, and only the pushing, bullying chicks will make progress. For the same reason it is inadvisable to run chicks of different ages together, and still more undesirable to mix young and adult birds. Where this cannot be avoided, see that the chicks are fed in a movable covered run, to which they alone are given access by regulating the size of the opening or wires ; and furnish separate roosting quarters available only to the youngsters. They cannot, however, be expected under such conditions to make the same progress as in small well-graded flocks, and where given the special treatment advised in this chapter.

Chapter X.

TABLE POULTRY AND FATTENING.

MUCH of the interest now taken in exhibition table poultry owes its origin to the capital shows of dead poultry started in the 'nineties in connection with the Smithfield Club's annual fat cattle show at Islington. Thanks to Sir Walter Gilbey and the late Mr. Tegetmeier, British producers were thus able to compare their products with representative exhibits from France and Belgium; the lesson was soon taken to heart, and since then improvement has been most marked.

Best Breeds.—An expert exhibitor, Mr. W. Mothersele, writing to us in 1912 on this subject of exhibition table poultry—which section it may be well to deal with first—says: “Of the breeds suitable for this purpose, the Dorking comes first, and rightly so, as it is one of the finest table birds we have, and when crossed with the Indian Game there is nothing to equal it. This is the cross which when fattened makes such good prices in the London markets, and for which there is plenty of demand. I prefer the Dark Dorking for crossing with the Indian Game, and for my purpose I select about eight good-sized

Dorking hens, or well-matured pullets, with good long bodies and good depth and width. I mate these to an active, medium-sized Indian Game cockerel, as giving more satisfactory results than the very large Indian Game, which do not fertilize the eggs so well. From such a pen, good exhibition table chickens should be bred.

“ Another good cross which I like is a Buff Orpington

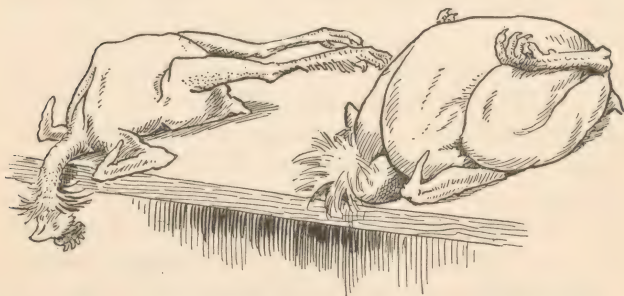


Fig. 55.—A lean chicken (left) contrasted with a fatted one (right).

cock with Dark Dorking hens; these are very fast growers, and fatten well and make very large birds. I had one pair of this cross that weighed $27\frac{1}{2}$ lbs. at seven months old, but the heaviest single bird I have weighed was 15 lbs., and this was an Indian Game-Dorking.

“ Two other good crosses that I like are the Indian Game-Faverolles and Indian Game-Sussex. These make first-class table birds; and then there are the

Sussex, great favourites of mine, for they fatten so easily, are capital layers, and very easy to rear. I have had a pair of this breed, not seven months old, weigh when fattened 24 lbs. I do not find much difference in either the Red, Speckled, or the Light Sussex for producing exhibition table chickens, providing, of course, that you get good-sized birds of each variety.

“A few remarks as to the way in which I hatch and rear my exhibition table poultry may not be out of place. I hatch nearly all the chickens by incubators (100-egg size), as I find they do far better hatched this way than by hens, as they keep freer from insects and grow just as well. I also rear the chicks in foster-mothers, which effects a great saving of time over broody hens.

“When the chicks are first hatched I never give egg food, but a good chicken meal, on which they do splendidly. On this I feed them five times a day for the first six weeks, and then less frequently. Later on, I give oatmeal, bran, and pollard; but the main thing is to keep them growing, and give just enough to satisfy, and no more.

“When the chickens are large enough—which usually ranges from twelve weeks upwards—they are put up to fatten, and I generally put them up for three weeks or a month. The first week I feed them from the trough, and then at the end of the week I start to cram them. The food for the first week should be half milk and water mixed with ground oats. After

the first week all food should be mixed with pure milk, and a little mutton suet added, and by this treatment I find that the birds fill out splendidly."

The experience of those engaged in the practical side of the table poultry industry virtually endorses that of Mr. Mothersele, and whilst, naturally, fatteners on a large scale have to deal with the material received from the higglers, the preference with them is given to the pure Sussex. Owing to the fact that the breed is an early and a good layer, it is a greater favourite with chicken-raisers than the Dorking and Indian Game, which are laggards in these respects, although the finest of table crosses. Other breeds useful for the purpose are Faverolles, Orpingtons, Langshans, and to a lesser extent the yellower-skinned varieties, although one friend of ours has no difficulty in disposing of all his mismarked Columbian Wyandottes to a higgler at remunerative prices for sale to the fatteners. Still these yellow-skinned breeds, under which, owing to the liking for Rocks already alluded to, many of the Irish fowls consigned to fatteners are included, even after milk feeding, never fetch the prices at market of the better class white-fleshed table birds.

A cross well spoken of to us by Mr. G. Paynter, when we were viewing his chicken-raising experiments at Haslington in 1912, was Faverolles and Sussex. This, he found, matured rapidly and furnished a big bird at the age of from ten to twelve weeks, the time most suitable for the fattener.

A Fattening Establishment.—To those who have never seen a fattener's establishment a short account of the process may be of interest, and for the purpose we will combine some notes of a visit of our own to such a yard with an excellent account of a trip to another made by our friend, Mr. F. L. Platt, of the *Reliable Poultry Journal* (U.S.A.), in 1912. The first things to note on entering are the long rows of fattening pens, usually set up so as to face one another, and either ranged in the open under the shade of trees with wind-break shutters, or housed in rows in open sheds. These fattening coops are usually rough structures raised on uprights to about three feet from the ground, so as to be a convenient height for the feeder. Each compartment of a pen is of a size to hold from four to six fowls, the floor being open-slatted, and the slats of which it is composed being tapered off from one and a half inches on the standing side to an inch underneath, so as to allow the droppings to pass through to the ground below without sticking. The back of the coop is match-boarded; the top is of two and a half inch battens running lengthways, set two inches apart; and the front is composed of slats one and a quarter inches wide, set two inches apart to allow the birds to get their heads through. Protection against sun or rain to the coops placed in the open is generally afforded by rough sacking or tarpaulin drawn over, but in the yard we visited an improvement on so rough a method was present in the shape of light, portable wooden covers raised above the top slats of

the coop so as to allow top ventilation, a tarpaulin being added in very rough weather.

On the receipt of the raw material from the local higgler, or, as is often the case, of the lean fowls in crates by rail, the birds are sorted out into sizes; and at the place we visited, before penning up, each bird was felt to see if it had any hard corn left in its crop, and if so it had water only until the crop was clear.

Feeding.—In the earlier stages of fattening, the birds feed from troughs attached to the front of these pens, their food at first being the finest ground Sussex oats mixed with water to the consistency of a fairly stiff paste. For the first three or four days the birds get this mixture somewhat sparingly three times a day; and then until the end of their second week they have only two meals per day at regular times, as much as they will eat, nothing being left between whiles in the troughs, which are cleaned out as soon as the fowls cease feeding. The diet for the second week we found varied slightly from that of the first, melted fat being added to the oatmeal and water. This addition was probably due to the fact that water was being used for mixing instead of milk, which was just then short, and which Mr. Platt in his notes on another establishment mentions as being given in increased quantities, until, at the end of the week, no water was being used for mixing but only milk. No drink is supplied to the birds beyond the moisture contained in the soft food.

A careful watch, we learnt, was taken by the feeder

on the progress of the birds ; any fowl showing signs of illness is at once removed and isolated. A ready method of discovering whether a bird is doing well or the reverse is to feel its legs. If they are nice and warm all is well, while coldness is regarded as a sure sign of ailment, and in two or three cases tested this certainly was correct.

Cramming.—A fortnight of trough feeding usually fits the birds for the next stage—the cramming house—as if kept feeding longer from troughs the birds, weary perhaps of their diet, sulk and go back in condition.

At some fatteners, and especially in summer, the cramming process is also done in the outside coops ; but, at the place we visited, after two weeks outside, the partially-fatted chickens passed on to similar coops inside a shed, to be kept in comparative darkness and snugger and warmer—for it was winter time—than during their outside coop probation. At this stage troughs are dispensed with, as the cramming machine is now brought into operation.

Machine Used for Cramming.—Sussex ground oats, mixed well with milk to a thick paste (fat being added if separated milk is used), is poured cold into the funnel of the machine. The operator, taking a bird from its coop, holds it so that the right hand is round its crop, the bird being pressed to his left side by the left arm, the hand of which grasps the bird's head. A finger then opens its beak and holds down the tongue, and the rubber feeding tube is passed by the right hand down the throat to the crop. The operator

then, by means of pressure on a foot treadle affixed to the crammer, forces sufficient food into the crop



Fig. 56.—Poultry Crammer. A, hopper on pump. B, rubber tube put into crop. C, pedal for operating the pump.

to completely fill it, the right hand meanwhile being kept as an index on the crop, and thus regulating the supply (Fig. 56). So nicely does long practice enable

the quantity to be gauged, that the veteran fatterer we saw at work had rarely to administer a second dose, each crop at the first movement being well filled and the bird in its pen in the fraction of a minute.

To show what a boon the cramming machine has been, we were told that whilst, under the old system of "crams" in the shape of balls of food administered by hand, an expert could do six dozen birds in an hour, with the machine six a minute or three hundred and sixty in the hour had been treated.

Tests for Condition.—A fortnight or less in the cramming-house usually fits a bird for market, a point decided by noting whether it is well filled in with fat on the bones at either side of the vent. Very large birds are sometimes carried on to five weeks from the date of penning up, but in most cases three to four weeks are sufficient, and the bird then goes back instead of improving. Such a bird is usually detected by the crammer on his round finding that it has not cleared its crop from the previous meal, and it is then left unfed, and if it fails again, receives the happy dispatch.

Cramming with the Sussex fatteners is usually carried out at a regular hour night and morning, the food for the next meal being mixed after each operation. Sour milk is always preferred by the Sussex fatteners to sweet milk; it is purchased round about the country, and kept in 90-gallon casks sawn in half. It keeps well, and can be stored for a long time. Mr. Taylor of Uckfield, whose fattening establishment Mr. Platt visited, has a large farm which he owns; and

besides using milk from his twenty cows, he spends from four to five pounds weekly for skimmed milk, but it is always given sour to the chickens. This is a part of the art of fattening, and poultry husbandry as practised in Sussex is indeed an art handed down for generations.

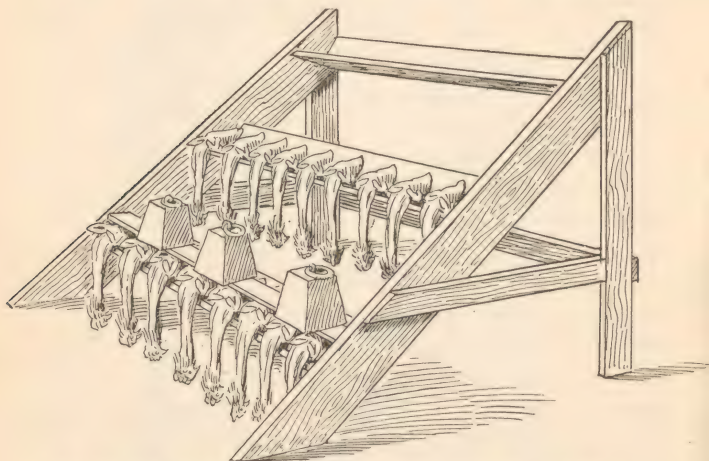


Fig. 57.—A Chicken Press. The birds in the upper row are placed breast downwards in the shaping board ready for pressing. Those in the lower row have had a board and weights placed on them to force them to take the shape of the board and appear plumper.

Chemical analysis does not explain why, but experience has shown that when the milk is fed sweet it becomes necessary to give the birds green food in some form, while giving it sour dispenses with the necessity of supplying green food. Grit is given to the birds during fattening after the first week.

The birds should be left unfed for twenty-four hours before killing, so as to empty the crop and bowels, and treated thus they will keep longer, and drawing will be a cleaner and more pleasant operation.

Killing at the establishment we visited was done by breaking or dislocating the neck—probably, if properly performed, as humane a method as any. The birds were then, as far as possible, plucked whilst warm, and placed in the shaping boards in that condition, so as to “set” better. These shaping boards consist of V-shaped shelves, into which the fowls are placed breast downwards after the claws are broken and the hocks tied together. A board with a weight on it is then superimposed until the fowls are taken out to pack and dispatch to market. In this press the head and neck hang out over the front. (Fig. 57.)

From a fattener we learnt that pullets usually fatten quicker than cockerels, but that the latter in the end make bigger and better birds. From four to five months old is the age at which the bulk of chickens are killed; pullets must not have laid, or the fattener’s invoice will be marked “old hen,” and a large deduction made therefrom; and cockerels must be very short in spur and not too stiff, or else they also get pegged back in price on the market.

Half-fatted Chickens.—There is a stage in fattening, as will have been noted, when trough feeding ends, and at this many birds are killed for market, which has a demand for such half-fatted chicks as well as for the more finished article produced by the cramming

machine's later operations. Fattening up to this point is of service for making the best of surplus utility stock or faulty exhibition birds either for home consumption or sale, the weight gained on an average of twenty-four birds thus treated being mentioned by Mr. Lewis Wright as nearly 2 lbs. per bird in the two weeks. It has been found that birds put up for fattening thus do better with companionship, and that three or four in a pen will eat more each and give better results than if penned up separately.

Plucking.—To pluck chickens without tearing them requires practice, and even then some can never do it successfully. The great thing is to pluck the feathers sharply from the carcass. If they are plucked slowly the operator is almost sure to tear the skin. An experienced plucker will often first of all just rub the feathers down the wrong way, especially on the breast. This separates the feathers and ensures that they are not matted or crossed near the skin, for if crossed a tear is certain. Hold the legs and tips of the wings in one hand, and after killing the bird immediately pluck off the back feathers and all but the stiff feathers from the wing. These should be pulled out and placed by themselves. Now turn the bird over, and put the feet under the left arm; with the left hand hold both wings at the back near to the body, and bend the neck down also and grasp it in the same hand, pulling it as tightly down as possible. Next, tighten the body, keeping the feet firmly gripped under the arm; when it is in this taut position the feathers can be removed

easily by plucking them off in the opposite direction to that in which they lie. Try on a good old hen or two, and it will be seen how easily it is done, and by not tearing these the novice will gain "confidence," which is, after all, the secret.

In large establishments quite an appreciable return is secured from the feathers, especially if the body or



Fig. 58.—Surrey Capon, after pressing.

soft feathers are kept apart from the stiff or quill feathers, and sorted in dark, light, and white. The manure collected from beneath the fattening coops is an even more important by-product, and can be treated as advised on page 257.

Milk Chickens, also known as *Petits Poussins*, are chickens from a month to two months old for which

there is a certain demand amongst the best class of London poulterers during the season from April to July. The chicks from a fortnight old are fed on a diet of barley meal cooked in skim milk, or upon ground oats mixed with warm milk, and are forced on by giving as much as they will eat. At six weeks the Belgians expect them to weigh 14 ounces, and at eight weeks about $1\frac{1}{2}$ lbs. In London, according to Mr. Edward Brown, F.L.S., they are handled earlier at weights from 8 oz. to 12 oz. This branch of the poultry industry opens up a possible market for surplus cockerels of laying breeds, and for the wasters of exhibition stock at the first weeding out. It is a market, however, that needs some personal inquiry as to the class of bird required by the poulterer, and is not of much value so far as the heavy-boned varieties which mature slowly are concerned.

Chapter XI.

DUCKS, GEESE, TURKEYS, AND GUINEA-FOWLS.

Ducks.

WATERFOWL generally, and ducks in particular, do not receive the attention from poultry-keepers which they deserve. They are not, perhaps, suited for a limited space where appearances are considered, since ducks will foul and spoil a grass run in far less time than an equal number of fowls; but on the other hand, they are less susceptible to disease, and very large numbers are reared annually in small yards with bare earth runs and a shallow basin of concrete or wood let into the ground by way of a pond. From a utility point of view ducks are quite as profitable as fowls, and where there is ample grass run and plenty of water they are also decidedly of ornamental value.

The principal breeds kept in this country are the Aylesbury, Rouen, Pekin, Cayuga, Indian Runner, Blue and Buff Orpington, and of these probably the first named is the most popular on account of its excellent table properties and fair laying abilities.

The Aylesbury (Fig. 59) derives its name from the district of Buckinghamshire which for years has been noted for the large number of ducklings reared annually therein by smallholders, and consigned to the London

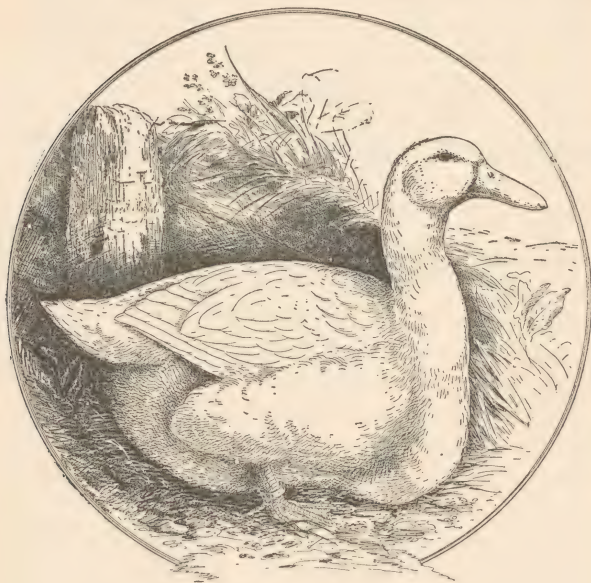


Fig. 59.—Aylesbury Duck.

markets when from eight to eleven weeks old, or just prior to moulting their baby feathers. At eight weeks well-reared ducklings should attain a weight of 4 lbs., pretty good testimony to the rapidly-maturing capacities of the breed. Mr. Bygott, a well-

known waterfowl breeder, of whose notes in *The Feathered World* we have made free use, says of the Aylesbury that it is very prolific, lays early, matures very rapidly, and should be ready for the spit at ten to eleven weeks old, when it attains 5 to 6 lbs. weight—it can be made 11 lbs. at six months old. For utility purposes the Aylesbury makes an excellent cross with the Pekin or Rouen.

In colour the Aylesbury duck is pure white with a rose-tinted or flesh-coloured bill, dark eyes, and rich orange legs. As becomes a good table bird, the shape is long and low on short legs, the body being set close to the ground with a straight long keel from breast to stern, and the back as nearly as possible in accord with this. The body is deep with a good full breast, and the carriage is horizontal rather than erect or perpendicular like that of the Pekin or Indian Runner. The standard weight for a duck is 9 lbs. and drake 10 lbs., but these weights are often exceeded.

The Rouen (Fig. 60) is, we think, the most handsome of utility waterfowl, the drake, especially in the full splendour of his breeding plumage, rivalling, like his wild ancestor, the Mallard, the claims for beauty of even the purely ornamental waterfowl. Hence the Rouen is a general favourite, and very useful as well, owing to its great size.

This duck, Mr. Bygott holds, did not originate in Rouen, France, as its title has led people to suppose; but that the name is due to the habits of its wild ancestor, the Mallard, in frequenting fields of sprouted

corn left standing for stock, birds, game, etc., on which it will feed till after Michaelmas. Such a field is called Rowan, and hence the corruption Rouen. Mr. Lewis Wright, however, accepts the more obvious derivation, from the fact that around the Norman city ducks of Rouen type, though less carefully bred, are plentiful.

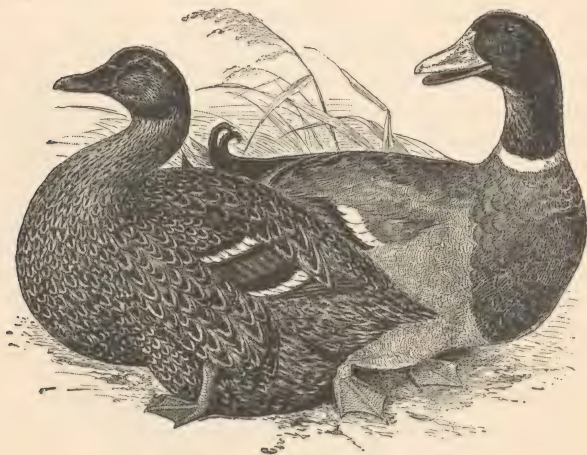


Fig. 60.—Rouen Duck.

In size the Rouen equals the Aylesbury, but does not mature so rapidly or dress as cleanly for early consumption. For later marketing in its adult plumage from Michaelmas to Christmas it cannot be surpassed for flavour; and whilst 11 lbs. is quite a usual weight at six months old, Mr. Bygott has had drakes at eighteen months scale as much as 14 lbs. Excel-

lent table fowl as it is in itself, the Rouen crossed with other breeds, especially the Aylesbury, for utility purposes makes an immense dish of excellent quality at Christmas, birds of this cross being known to realize from 12s. to 18s. per couple.

In shape the Rouen is somewhat akin to the Aylesbury, and the standard weights are the same. We have already alluded to the beauty of its plumage, striking features of the drake being the glossy green of the head and neck, sharply divided by a white ring, not quite meeting at the back, from the rich claret of the breast; this again contrasting effectively with the delicately pencilled French-grey body, blue ribbons and white marks on wings, and greenish-black back and rump. The duck is a more sombre creature, her ground colour being a rich golden-brown, laced with black throughout, and the blue-ribbon wing covers outlined by white as a welcome contrast. A peculiarity of the Rouen drake is that, like the Mallard, it moults in summer into practically the female plumage, and does not regain its male attire until late in the autumn.

The Pekin (Fig. 61), as its name implies, hails from China, where immense flocks are kept. Its introduction here is largely due to the widespread popularity of the breed in the United States, where it is the favourite on the big duck farms of that country. In colour the Pekin is buff canary or deep cream, with an upright, almost perpendicular, carriage with the tail carried high. There is little keel, but the body is broad, with a good full breast, and the bird carries a wealth of plum-

age. For this reason, from a utility point of view, it is best disposed of when in its first feathers. Maturing quickly, it is often ready for table at nine weeks old. After that age, owing to the presence of pen-feathers or stubs, it does not dress so well as the two previous breeds mentioned, with which, however, as well as with the Cayuga and Orpington ducks, it makes a

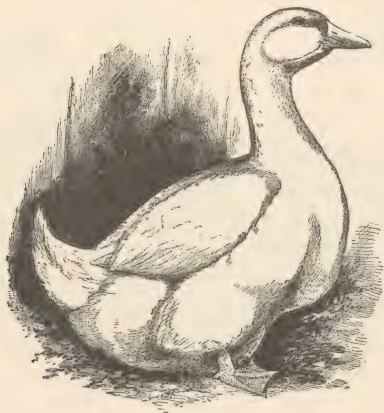


Fig. 61.—Pekin Duck.

useful cross. The Pekin is a non-sitter. The standard weights are—ducks, 8 lbs. ; drakes, 9 lbs.

The Cayuga (Fig. 62), on account of its dark-green lustrous plumage, Mr. Bygott advises as suitable for places where the snow-white Aylesbury is difficult to keep clean. It hails from North America, and the lustre of its originally dark plumage is probably due

to crossing with the Black East Indian. The size of the Cayuga has been greatly improved by breeding, and though the standard weights given are drake 8 lbs. and duck 7 lbs., they have been exceeded by 2 lbs. in some of the best specimens. Having a long, deep body, the Cayuga makes a capital table duck. It is at its

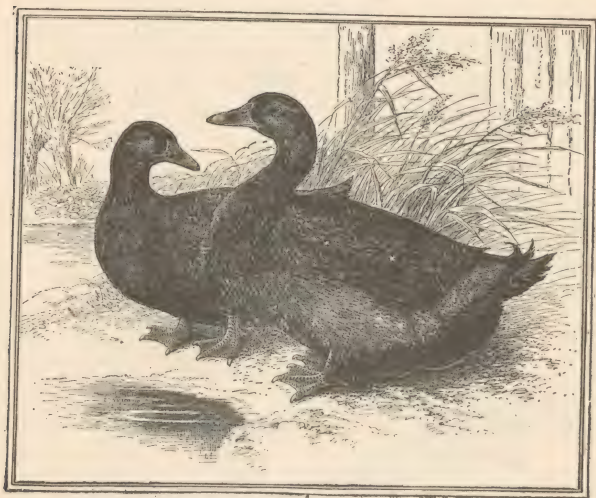


Fig. 62.—Cayuga Ducks.

best when full grown, as, owing to its dark plumage, it does not dress well through the pen feathers or stubs showing up. When fully feathered it rivals any of the breeds in quality and flavour of flesh. It makes a useful cross with the Pekin and other ducks.

The Indian Runner (Fig. 63) is the finest layer of the

duck tribe, and indeed has held the world's record among fowls for the number of eggs produced in the year. It is hardy and a capital forager, and, if given



Fig. 63.—Indian Runner Duck.

a free range, will pick up most of its own living. The colour most generally kept is the fawn and white, although pure whites and other colours have been

shown. In shape the Indian Runner should resemble, as regards its body, a soda-water bottle set as nearly as possible upright. For this Penguin-like carriage, shared to a limited degree by the Pekin duck, the Indian Runner is remarkable; and its quick running gait is another characteristic, altogether distinct from the waddle of the ordinary duck.

Mr. J. W. Walton, one of the best known authorities on the breed, says that Indian Runner ducks should range from $3\frac{1}{2}$ lbs. to $4\frac{1}{2}$ lbs., and from twenty-four to twenty-eight inches in length, and drakes from 4 lbs. to 5 lbs., and from twenty-seven to thirty inches or more. They usually appear smaller than they really are owing to their compact build and tight plumage. They lay a large egg—usually white—for their size, and are practically land ducks, requiring just sufficient water to drink and provide an occasional bath. As table birds, though they are of excellent flavour, their small size is against them; but for utility purposes generally they make useful crosses with the other breeds of ducks.

The Orpington duck (Fig. 64), of which there are two varieties, the Blue and the Buff, with a specialist club to look after their interests, owes its origin to the energy of the originator of the Orpington fowl, the late Mr. William Cook. That skilful breeder's aim was to produce a duck that, like the fowl of the same name, should combine good table and laying properties. The foundation stock was Aylesburys, Rouens, and Cayugas of proved laying strains crossed with Indian Runners

of like properties. These were crossed and intercrossed as well as back to the parent stems, and gradually a buff and a blue variety evolved. The result has fully justified the trouble expended, and for an all-round utility duck the Orpington is hard to beat. It has the merit, too, of being extremely hardy and the ducklings easy to rear. The standard weights are 7 lbs. for the

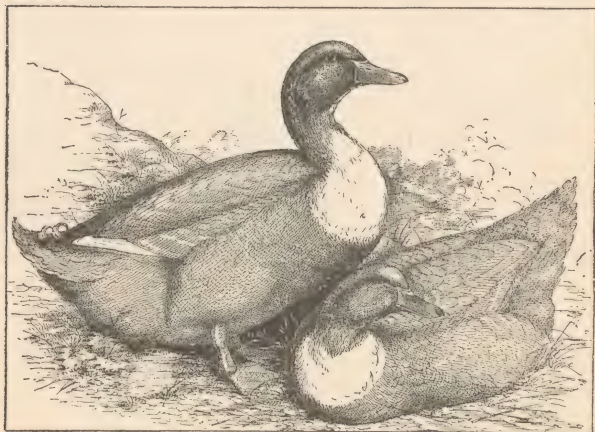


Fig. 64.—Blue Orpington Ducks.

drake and 6 lbs. for the duck. The colour of the Buff is a rich even shade of fawn throughout, the head and upper part of the neck of the drake being darker. The Blue should have a clean even colour throughout, free from any lacing, in contrast to which there is a well-defined white bib.

Khaki Campbell and **Coaley Fawn** ducks are also

the product of individual breeders' skill, and, like the Orpington, can be well spoken of as combining good laying and table qualities.

The **Muscovy**, **Black East Indian**, **Bahama**, **Mandarin**, and **Carolina** ducks may be classed under the heading of ornamental ducks, and so need no reference in a practical work of this kind.

The management and feeding necessary for ducks are very similar to that of fowls, except that ducks require more animal food if they have not a free range on grass or a pond or stream to swim and forage in. Failing other supplies, Mr. Proud in such cases always advised the use of pork scrap (the residue from the fat after the lard has been extracted), which can be obtained cheaply from large pork butchers. Being ready cooked, this only requires mixing with the meal in the morning, such as one part peameal, two parts fine bran, scalded together and mixed with middlings, and the meat being added to form one-third of the meal. At night ducks should have their hard corn, preferably wheat, given to them in a trough, covered with water, as ducks require their food moister than fowls. Where they do not have access to fine gravel or similar grit the deficiency should be supplied by putting grit in the feeding trough.

Ducklings for the table are usually sold between the ages of ten and twelve weeks. For the first six weeks of their lives they should be fed on equal parts bran, barley meal, and maize meal, well scalded with boiling water, and then allowed to stand for about ten minutes

to swell out properly. To this should be added sufficient middlings or thirds to make the whole a fairly thick paste, and to this, half the quantity of boiled potatoes mashed up and some kind of animal food, either boiled bullock's lights or sheep's paunches, chopped up fine. Better still are the lard scraps from the pork butcher's mentioned above. During the last fortnight of their lives the bran can be omitted, and more boiled potatoes and lard scraps added. For the first three weeks they should be fed three times a day on the above food ; but after the three weeks two feeds of soft food will be sufficient, if they have a good grass run. The last feed of the day should be wheat, placed in the troughs used for the soft food and covered with water. Grit and, of course, drinking water must be supplied.

Housing Ducks.—As to housing, the chief requirements are a good roof overhead and a dry bed to sleep on at night. The floor should be either concrete or dry earth, or be boarded as in the illustration (Fig. 65), and be kept well littered with straw. Give ample ventilation, but see that the floor is dry, for ducks, curiously enough, considering their natural habitat, are susceptible to damp, which often is the cause of ducklings losing the use of their legs.

Owing to their habit of dropping their eggs in water where they have a free range, by which large numbers of eggs are annually lost, it is well either to confine the ducks in their house until about 9 a.m., or give them the run of a small confined plot up to that hour,

so as to ensure securing their eggs. Although it is not absolutely necessary that breeding ducks should have water for swimming, they always do better with it, and greater fertility is ensured, as copulation usually takes place on the water. Where natural water is wanting, however, its place can be supplied by sinking a shallow cistern or water-butt in the run,

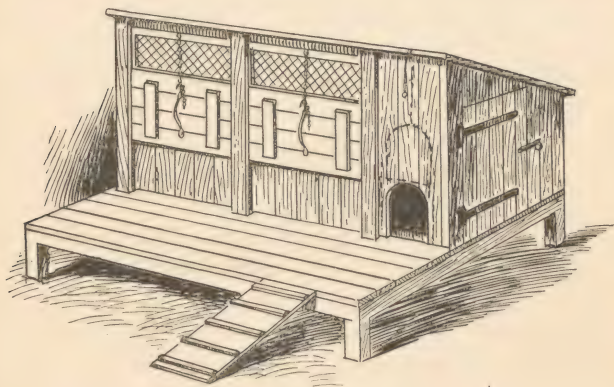


Fig. 65.—A Duck House.

sufficiently large and deep for the ducks to swim in. The number of mates for a drake is governed by his age and his size. While it is usually not advisable to give him more than three ducks, some of the lighter varieties and those bred for the table only may have five or six, and produce quite as many ducklings per duck as in the former case.

Hatching Ducks' Eggs.—When ducks' eggs are

hatched in an incubator, moisture should be placed in the tray from the very beginning, for better results are obtained by doing so than by treating them like hen eggs. Duck eggs take longer to hatch than hen eggs, and generally hatch out about the twenty-seventh or twenty-eighth day, although they often chip a couple of days previously ; so their owner must not get excited and help the young birds out of their shell too early. A flannel, wrung out in warm water, can be placed over the eggs after airing on the morning and evening of the twenty-fifth day and on the morning of the twenty-sixth, and the drawer closed for ten minutes and the flannel then removed, after which time the eggs should be simply aired and not handled in any way whatever. Do not forget that the correct temperature is 102 degrees for duck eggs. A very large number of duck eggs are hatched under broody hens. One advantage that ducklings have over chickens is that they can almost look after themselves at fourteen days old, whereas chicks need the hen for six weeks or more. True, a slight warmth is needed at night, but they soon look out for all they require without the care of a mother, natural or artificial. For the first week or two the diet advised for chickens will do nicely for them, after which a more liberal allowance and variety may be given. There is no occasion to give ducklings egg food after the first day. On the second day they should be fed largely on bread and milk, with oatmeal and milk mixed to a stiffish paste for a change ; then commence with equal parts ground oats, barley

meal and bran scalded and made sloppy, to which, after allowing it to stand ten minutes, add sufficient middlings or thirds to make the whole a stiff paste. Remember always that ducklings require their food much moister than chickens, and also need plenty of animal food.

The sex of ducklings can be distinguished by remembering that those ducklings which make a distinct "quack" are ducks, and those whose voices are hoarse and squeaky are drakes. When in full feather the drakes will show at the top of the tail, one or two of the upper feathers turning up in the shape of a "curl," a certain sign that the possessor is a drake.

Exhibiting Ducks.—To those of our readers who think of exhibiting ducks the following hints regarding the two white varieties may be of service: Aylesbury or Pekin ducks require very little preparation for the show pen if they have clean bathing water to resort to; but if not, they will have to be washed about two days before the show, and be kept in a clean pen with a good bed of straw. For about ten days prior to the show they should have a good feed each morning of soft food, composed of ground oats or oatmeal and thirds mixed to a stiff paste with skim milk. Before sending Aylesbury ducks to a show, cram them well with the above food to make them appear deep in front. For the night feed they should have wheat, placed in a trough and covered with about two inches of water. Pekins must not be crammed, as this variety does not require to be deep in front. When Pekins

begin to drop into moult, iron can be given in the drinking water to improve their colour ; but do not let Aylesburys have iron, as they must be as white as possible. In the case of the coloured varieties little more will be required than to see that the legs and feet and bill are clean, and the bird of course in full and good plumage.

Geese.

Whilst geese are essentially the birds for running on a free range of poor or common land, and so hardly come within the scope of the average poultry-keeper, yet for the farmer with such accommodation, or the cottager with free access to a village green, there is no more profitable branch of poultry. Geese are essentially grazing animals, and, given plenty of grass to feed upon, require but one grain meal a day to keep them in condition—not even that in autumn if they have access to the stubbles, where they will pick up enough to fatten well for table. For housing, a good roomy shed deeply littered with straw does well. In the breeding season, from February onwards, the geese, like ducks, should be confined until after breakfast, so as to ensure the eggs being laid at home and a nest not stolen.

The varieties best known here are the Embden and the Toulouse, and to a lesser extent, the Chinese or African goose.

The Embden (Fig. 66) is the largest of our domestic geese, the standard weight being given as 30 to 34 lbs.

for the gander and 20 to 22 lbs. for his mate, but even these weights have been exceeded. The plumage is pure white; legs, feet, and bill are orange; and the eyes blue. In carriage the Embden is more upright than the Toulouse, and its appearance is fitly described as defiant. It is an excellent sitter and mother, and is as

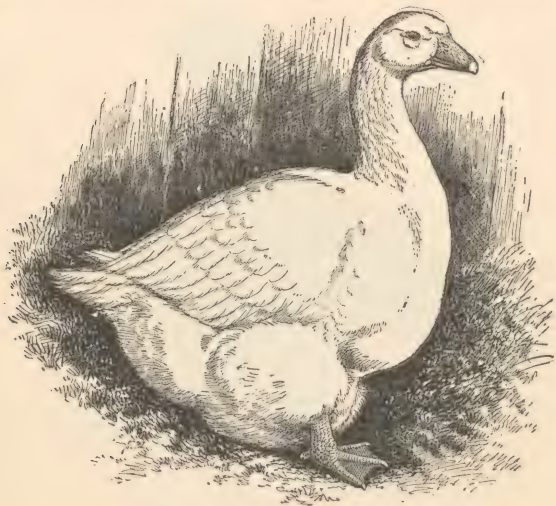


Fig. 66.—Embden Goose.

useful as it is handsome, the goslings maturing early and the white feathers of the birds meeting with a remunerative sale.

The Toulouse (Fig. 67) is rather smaller, the standard weight being from 28 lbs. to 30 lbs. for the gander, and 20 to 22 lbs for the goose. In plumage the Toulouse is

a pleasing contrast in shades of grey, dark on the head, neck, back, wings, and thighs, and lighter on the breast and keel, with white in the stern, paunch, and tail. The Toulouse very seldom becomes broody, and, Mr. Bygott finds, usually commences to lay late in January or early in February, continuing right on

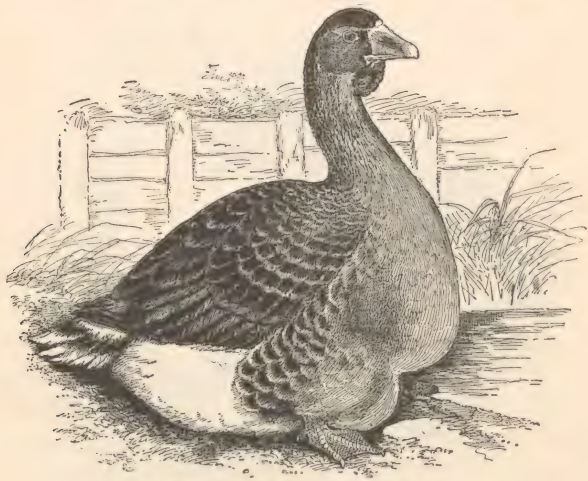


Fig. 67.—Toulouse Gander.

until it begins to moult at the end of May or early in June. As the Toulouse is practically a non-sitter, hens or incubators must be used for hatching its eggs.

The Chinese goose is much smaller than either of the preceding and grey in colour like the Toulouse; but the gander's plumage is tinged with brown with a dark

stripe on the head, and he has a slight mane on the neck and a large bean-like growth on the upper mandible. The Chinese goose is most prolific, and a cross with a Toulouse gander will yield excellent results for early goslings, as the Chinese goose will sometimes start laying as early as November.

Another excellent cross which Mr. Bygott commends is that of an Embden gander of about 22 lbs. weight mated to three or four Toulouse geese of a good-laying strain scaling about 20 lbs. each. If the breeding stock selected have large frames and plenty of bone, their goslings should, if properly fed, weigh up to 25 to 30 lbs. when eight to nine months old. After coming off the stubbles, if not intended for Michaelmas but for Christmas sale, the same authority advises that, three weeks prior to being killed, they should be shut up in flocks of six and fed upon barley or other sound meals. Whole good sound wheat given in a trough of water is an excellent feed, and geese so fed will dress perfectly white and command a ready sale at good prices. A trough of grit should always be within reach of geese put up to fatten.

The sex of geese can be discerned in various ways. One is to enter the pen and drive them into a corner, when the Ganders will usually station themselves on the outside of the flock, lowering their necks and hissing, even if they do not take more active measures. The voice is also different in the gander, being hoarser, and as a rule the gander is larger in the head and thicker in the neck, but the first-named is the safest

test. When a dog is present, the ganders always keep to the outside of the flock to protect the geese.

Breeding.—Two to three geese are usually enough to mate to one gander; they should be put together in December, to become properly mated before breeding commences. In the case of the sitting breeds it is customary to take away the earlier eggs, if many geese are kept, and put them under hens (a good broody will cover five) or into incubators, where they will need much the same treatment as duck eggs. Note that the period of incubation is thirty days, or slightly less with some of the smaller varieties. The later eggs laid, except those of the Toulouse, can be left to the goose to hatch; the Embden especially is a model parent.

Some ganders, particularly the old ones, are vicious during the breeding season, and whilst their mate is sitting keep very efficient watch over her, brooking no interference, and can deal a nasty blow with their powerful wings.

Rearing Goslings.—When the goslings hatch out, they and their parent are best penned off in a separate run for the first fortnight, a dry shelter with the ground as floor, and well littered with straw being provided at night. The artificially hatched goslings will need placing in a cool brooder, and gradually hardening off in readiness for drafting to outside shelter. The first day's feed should be of egg and breadcrumbs mixed with chopped vegetables, and after that the goslings can be given scalded wheat—

that is, wheat which has had boiled water poured over it, been allowed to stand a little while, mixed with equal parts of barley meal and thirds and some cooked and mashed vegetables, such as cabbage or turnips. To this add also some kind of animal food, say granulated meat or boiled sheep's paunches, chopped fine. For the night feed give scalded wheat alone. See that the goslings have plenty of sharp flint grit. At two weeks of age they should be able to find for themselves, and be let out to graze with the others; care being taken to provide shade, as goslings, like young ducks, are very susceptible to sunstroke in warm weather.

To fatten geese cheaply for table purposes, the following recipe by Mr. Proud in *The Feathered World* may be useful: Take equal parts of barley meal, bran, and thirds, and half the amount of pea-meal. Scald these well together, with the exception of the thirds, which should be used to dry the meal off somewhat. The mixture should be given twice a day—morning and noon—and should also have added to it a fair quantity of animal food. In the evening a feed of Indian corn or oats would be most suitable. To fatten, the birds should have as much food as they care to eat. With regard to water, it is not necessary to give more than is actually required for drinking purposes, and if water is not left with the birds, it should be given three times a day shortly after feeding. Another way is, about a month before you think about killing the goslings, to feed them each

morning on a mixture of two parts ground oats, two parts barley meal, and two parts bran. Scald these together, allow to stand for a few minutes, then dry off with middlings or thirds, and to this mixture add half the bulk of boiled potatoes. At night give them boiled wheat, which should be placed in a trough and covered with water.

Turkeys.

With turkeys we reach the largest race of domesticated poultry, for ostrich farming as yet hardly comes within the scope of the ordinary poultry-keeper. Turkeys, however, demand space and freedom for successful breeding and rearing on a large scale, and as such are essentially adapted for farms, where ample range over grass land can be afforded to them during the breeding season; and where later, after harvest, they, like geese and other poultry, can be profitably given the run of the stubbles, when they will for weeks practically pick up their own living from the rich harvest of dropped grain and insect life there available. They are, moreover, essentially open-air birds, and the more closely their habits under domestication are allowed to approximate to those of their wild ancestors the less trouble there is generally from diseases. Close, stuffy poultry houses must be avoided at all costs. An open-fronted cart-shed is one of the best forms of roosting-houses for adult birds. For rearing young turkeys, fresh ground, un-

tainted by other fowls, and well drained and dry, is almost a necessity, as the turkey chicks are re-



Fig. 68.—Bronze Turkey.

markably susceptible to damp and to diseases arising from being run on land already contaminated by other poultry.

These warnings will tend to show that the turkey is essentially the bird for the farmer, the country gentleman with free range over his park or woods, or the smallholder with access to common land to eke out the capabilities of his limited holding. Given such conditions, and a natural aptitude for rearing young stock, turkey-raising can be made one of the most profitable branches of poultry-keeping; and in this connection it is not a little interesting to note that women have proved themselves to be *facile principes* amongst turkey breeders.

The three varieties of turkeys honoured by inclusion in The Poultry Club standards are the Black, with weights for the cock 27 lbs., and hen 18 lbs.; the Bronze—cock 36 lbs., and hen 20 lbs.; and the White—cock 26 lbs., and hen 16 lbs. These weights are, of course, those of adult birds, and have been exceeded, especially in the American Bronze Turkey, wild males of which have been shot weighing 60 lbs., though birds reared under domestication have rarely exceeded 40 lbs. Owing to its great size and vigour, due in no small measure to the continual infusion of wild blood, the Bronze Turkey, or American Mammoth Bronze, as it is sometimes called, is at present the chief favourite. The White Turkey, though smaller, is, however, making rapid headway, being much appreciated for the colour and quality of its flesh, while its plumage has marketable value. Other varieties of turkeys, all descended from the same common stock, but so long localized as to have ac-

quired distinct characteristics, are the Cambridge Bronze, Cambridge Grey, Norfolk Black, Buff, Blue, White, and Clay Bronze ; but continued crossing with the American Bronze to gain size tends to obliterate such distinctions.

Turkey Breeding.—Some of the hints which follow are based upon notes kindly supplied to us by Miss M. C. Appleyard (now Mrs. H. Abbot) and Mr. H. J. Cattell, both well known as successful turkey breeders. The careful mating of turkeys is of the greatest importance to get best results. In breeding for the ordinary market, a cockerel weighing about 25 lbs., and pullets 15 to 17 lbs., will prove the most prolific. For exhibition birds, or for great size, older stock are better mated, and it has also been found that where matured birds of good weight are used, the young stock resulting will, at the same cost of feeding, give greater weight than from the younger and lighter matings.

A point to be remembered in Turkey breeding is that one mating to the cock is sufficient to fertilize the whole batch of the hen's eggs ; therefore in some parts of the country where only a few turkeys are kept the hens are taken to a neighbour's male for mating. In the ordinary way an allowance of ten hens to a gobbler will be sufficient, and as some turkey cocks are spiteful to the chickens, it is always advisable to watch their behaviour before allowing them access to the young birds when hatched.

Turkeys will sometimes commence laying as early

as February if the weather is mild, but March is their favourite month. They generally select a quiet place to make a nest, and lay from twelve to eighteen eggs as a batch before going broody. It is usually not advisable to allow the turkey to sit on her first batch of eggs, which should be taken away and transferred to broody hens—whose nests must have an earth bottom—about seven to nine eggs being allowed to a hen, according to her size. If the turkey hen is then shut up, in about ten days she will have usually got over her broodiness, and if let out with the male and other birds of the flock, will soon lay again, and can then be allowed to sit upon her eggs when laid, if the nest is in a suitable spot. If it is not, she must be settled down in a convenient place on a well-prepared nest with an earth bottom—a task generally not difficult, as the turkey is a close sitter, and, though shy of strangers, quickly gets to know its regular attendant.

Some breeders, Mr. Cattell included, prefer putting the turkey eggs under fowls, allowing these to hatch them, and then transferring the day-old chicks at night to turkeys which have been broody about fourteen days. The turkeys usually take to the chicks all right, and certainly make the best mothers, as they find the youngsters so much natural food. An advantage of this plan is that as many as twenty-five turkey chicks can be given to one turkey hen to mother, and there is less risk of the eggs being crushed by a fowl than by a turkey, which is often a clumsy

although a good sitter. When broody, the turkey hen should be treated as advised for fowls in Chapter vii.

Incubator for Hatching.—Turkey eggs can also be hatched in an incubator, provided, of course, that the machine is a reliable one, and has been successful in hatching hen eggs. To get the best results, try to run the machine at 102 to 103 degrees, not higher, and do not add moisture to the tray until the twelfth day. Turkey eggs require about twenty-eight days to hatch out, but if they are new laid they may hatch on the twenty-sixth or twenty-seventh day.

Rearing Turkey Chicks.—The hatching accomplished, there arises the problem of rearing the turkey chicks, for it is very difficult to rear them successfully in rearers or brooders, and it is far better to get broody hens or turkeys (as above) to take them if possible. The broodies should have been on the nest for at least a fortnight, and the turkey chicks should be put under the hens at night-time.

A great deal of the success of turkey rearing depends on the chicks getting a good start, as if they get stunted when young they never really recover from it. Most breeders have different ways of starting young turkeys, but the chief points are frequent and regular feeding (which should be every two hours for the first three weeks), quite fresh ground, and a shelter from the cold winds and rain, as they must not get wet for the first few weeks; the danger time being until they have "shot the red" at about ten

weeks old, after which they cause little anxiety. In very hot weather a shelter from the sun should also be provided.

Housing.—As to the housing of the turkey chicks and their mother, at first a roomy coop placed in an open-fronted farm-shed is excellent, provided that the ground is uncontaminated; or a large coop on grass moved daily to fresh ground will suffice. The general treatment will be much the same as advised for ordinary chickens. As the chicks grow older and feather, they will at six or seven weeks do better if drafted into smaller flocks, and can be then allowed to perch. The open-fronted roosting houses already alluded to are the best for the purpose.

Feeding.—On the subject of feeding the chicks, Mr. Cattell writes: "I find a good menu to start with is bread and milk, a little hard-boiled egg (if boiled for thirty minutes it is quite digestible), steeped rice, a little biscuit meal, meat after the second week, and a plentiful supply of fine grit from the first. After the first month the birds may be gradually got on to a cheaper food, such as biscuit meal mixed with about equal parts of sharps or middlings and Sussex ground oats, and a little wheat and oats. There is no need to continue to use biscuit meal after the third month."

Miss Appleyard's methods are very similar, as she writes: "My favourite feeding stuffs for turkey chicks are oatmeal, egg, boiled rice, biscuit meal, chopped cooked meat. As the birds grow older, I give them

wheat and middlings, and when nearly full grown, stout white oats, wheat, a little maize in cold weather, and also a few boiled beans. Turkeys prefer their food in troughs; they tire quickly of picking up grain singly."

As in both these menus no reference to green foods is given—that element being probably taken for granted—Mr. Proud's more detailed dietary which follows may be helpful to beginners. "For the first few days baby turkeys should be fed chiefly upon a mixture of hard-boiled eggs and breadcrumbs, and for a change they may have bread and milk. The egg should be left off gradually, substituting some biscuit meal and oatmeal mixed with rice boiled in milk. They should also be supplied with a fair quantity of animal food cut up fine, and where they cannot obtain green food for themselves, this should also be provided in the form of chopped-up lettuce or dandelion leaves, and where onions are plentiful these may also be given. The chicks should be fed principally upon soft food, but a small quantity of grain, such as wheat or broken Indian corn, may be given as they grow older. It is far better to feed often and sparingly than a few times a day and then give them as much as they will possibly eat, for this will upset their digestive organs."

The chicks should be examined from time to time to see that they are not infested with lice or other insect pests, and if so, treat as advised in Chapter ix.

Preparing for Market.—There is always a good

demand for turkeys at Christmas, and, within reason, the higher the weight attained the better the price per pound, so that it pays to prepare turkeys for market as they approach full growth. This can be done in various ways. Those well fed for growth and frame can be brought to the highest condition by merely confining them to somewhat small sheds and feeding them freely twice a day on a diet of ground oats mixed with milk, the last feed at night being of whole white oats. Some feeders add carrots boiled in lard and sliced up; others give a meal of thick oatmeal porridge; and some a mixture of oatmeal, barley meal, and Indian corn, in equal portions, with house scraps and boiled vegetables mixed with skim milk. During the last fortnight some fat, suet, or lard scraps from the pork butcher may be added to the meal. Sometimes two meals per day are given, and the sheds are kept in semi-darkness between meals, the birds being let out for a few minutes before each feed to stretch their legs; but in other cases they are allowed daylight and feed oftener—say, three times a day. Grit is always supplied freely. The birds generally roost on perches all on the same level, about thirty inches from the ground. Many excellent turkeys come to the market which have never been confined at all, but simply fed three times a day for some weeks before killing.

The adult stock, where there is a wide free range, will, to a considerable extent, pick up their own living; but, in order to bring them home to roost,

they should be fed close to their sleeping quarters with good oats, maize, or wheat. Increase or decrease the supply according to the season and to the amount of food the birds can obtain on their range, bearing in mind that at the breeding season it is never advisable to have the stock in too fat a condition, or infertility will result.

Guinea-Fowls.

Many people regard guinea-fowls as but semi-domesticated poultry, and consider that, though they deserve being kept more widely than they are by dwellers in the country who have ample space for them to roam in, they are not so well suited to confined areas on account of their roving habits and unmusical cry. Given a park or fields over which they can range at liberty, guinea-fowls will pick up their own living if supplemented by just enough feeding to bring them, like turkeys, home to roost at night. Some strains are much wilder than others, and, indeed, if needed for killing, can only be secured by shooting; but if eggs are purchased, the chicks reared under a broody hen, and the young guinea-fowls brought up with the other poultry, they will be far tamer and more profitable.

When wild, the cock guinea-fowl mates with a single hen, but in captivity will usually mate with two hens but rarely successfully with more. The sexes are very similar, but the cock is usually rather

larger both in size and wattles, his call, "Come back" is harsher than that of the hen, and he has a trick of strutting about on his toes and arching his back, which also helps to make him distinguishable; and last, and worst of all, he is generally more quarrelsome than his wives.

One of the chief troubles with guinea-fowl is their

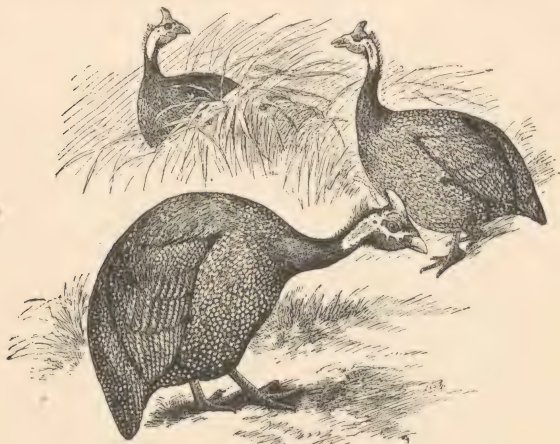


Fig. 69.—Guinea-fowls.

habit of stealing their nests. A constant watch has to be kept on the birds during the breeding season to detect their laying spots, a favourite place being a hedge bottom amongst sting-nettles. Mr. W. Kelsey, giving experiences of the guinea-fowl in *The Feathered World*, says they ought to be more common than they are at present, for they commence

laying about the first week in April if the weather is fairly warm, and will continue until the end of September, laying regularly almost all the time, as they never want to sit until about August; and then it is too late for the young birds to be of any use, as they cannot stand damp, cold weather, being very liable to cramp if hatched too late in the season.

Young guinea-fowls ought to be hatched out in, say, May and June, to have a chance of getting strong before the autumn commences, for they want plenty of sunshine. To ensure this it is best to find the nest and take the eggs, leaving one or two so as to entice the hen to continue laying therein. As the time of incubation is twenty-six days, it is advisable to select a good quiet broody hen as a sitter, and if the weather be warm to sprinkle the eggs with lukewarm water three days before they are due to hatch. When hatched, place the young guinea chicks with the hen in a coop with a run in front of it, so that the chicks cannot wander off in the grass and get lost. Feeding is an important point in rearing strong birds; the chicks will require constant attention, and ought to be fed six times a day, as their crops are very small. For the first six weeks their food should be hard-boiled egg and breadcrumbs well mixed for the morning and evening meals; at the other meals of the day give barley meal and occasionally a handful of wheat. Chopped onion-tops and lettuce are much appreciated as a change. Care should also be taken that they are well secured against vermin. The broody hen

can be fed and the chicks managed as directed in Chapter vii.

When the chicks are four months old the brown spots in their feathers gradually assume a pretty silver-greyish hue. This change will continue until the birds reach maturity. They have scarcely any feathers on the head, only the horny top-knot or helmet at the back, and blue skin under the throat. The young birds make delicious eating, and are most saleable in February and March, when game is out of season. Of the several colours, Mr. Kelsey found the pure dark-greys the hardiest and best to keep.

Guinea-Fowls in Confinement. — Another of our correspondents, Mr. Fred Martin, tried the experiment of keeping a pair of guinea-fowls in a confined run and feeding them like his ordinary fowls, and carefully recording the eggs laid under these conditions. The guinea-hen started to lay the last week in March and laid in the year one hundred and fifteen eggs, for which, although small, he found a ready sale at a penny each, on account of their colour and flavour, and more could probably have been realized for them if advertised as sittings.

A further note still further combats the idea hitherto accepted that guinea-fowl are not amenable to ordinary poultry-yard discipline. This is from Mrs. W. B. Goode, who wrote to us in December 1912 as follows:—

“ It is about seven years since I first began to keep guinea-fowls—the dark-grey speckled variety. I had white ones, too, for a time, but find speckled the

favourites. I have now two kinds of speckled—light (or lavender) and dark. By careful selection, keeping only well-marked, good-coloured birds, I can sell all I have to spare for stock at good prices, also their eggs for hatching. I often wonder how it is more people do not keep guinea-fowls, as they are very good layers and excellent table birds, and come in season most conveniently when game goes out. One objection to them I have heard is, they are so noisy—no one can sleep in their neighbourhood. Another, they are so wild—insist upon roosting in the higher trees and laying their eggs where no one can possibly find them. I was inclined to believe these things of them once, but seven years' experience has altered my opinion. The secret is management.

“Always have a house for them to sleep in, as you would do for any other fowls, and feed them near it; they always come up to be fed. Drive them in immediately after their evening meal, and shut them up for the night; they soon get used to this, and go in without any trouble and settle down quietly. If they are outside, so many things disturb them and make them noisy. As for being wild, the idea makes me smile. Mine are the tamest fowls I have—follow me all over the place, eat from my hand and jump on my lap at the very least opportunity. Too tame, I sometimes think, when they are crowding round me as I try to attend to the other poultry. A handful of coarse oatmeal is a great treat. You can gain the affection of any guinea-fowl if you offer it this.

“ They are most intelligent and inquisitive birds. The slightest alteration in the poultry yard is immediately noticed and minutely inspected by them. Even a new white water-trough instead of the old brown one had to be thoroughly discussed by the whole flock before any of them would use it.

“ They generally begin laying in the nests of their house, but when the grass gets long and especially if there are any nettles about (I always have a few left for them), the attraction is too great, and they make their nest in these—they generally all lay in the same—and if two or three eggs are always left in the nest they keep to it for a long time. I keep them in pairs, then practically every egg is fertile. Also, I take the precaution of cutting a few feathers in one wing of the hens just before the laying season, which commences in March. In this way the birds do not wander far to make their nest, and the finding of their eggs is not such an impossible feat after all. They lay very well, hardly missing a day until the end of September.”

With these notes, interesting as throwing fresh light on guinea - fowl management, this chapter must close. We will only add that, as geese are said to have saved the Capitol of Rome from surprise, so guinea-fowl will rival even those faithful sentinels in acquainting their keeper of the presence of strangers.

Chapter XII.

THE BUSINESS SIDE OF POULTRY-KEEPING.

MANY readers of this book will not be concerned with this chapter, for, provided their poultry furnish them with a pleasant hobby, and give a reasonable return in the way of eggs, they trouble little as to whether the incomings balance the outgoings for food, labour, and appliances. Such poultry-keepers perhaps save themselves a good deal of trouble, but we are not sure whether they do not also miss even more enjoyment in not keeping accounts and not doing their best to make their fowls pay. A profitable hobby has always an additional zest, and is, moreover, always an incentive to friends to take up a similar recreation.

Accounts.—Some sort of accounts should undoubtedly be kept. Book-keeping for poultry-keepers is made easy by such cheap, handy account books as "The Poultry Yard Record," and "The Exhibitor's Show Record," published at one shilling each by *The Feathered World*, London. Works of this kind, properly headed and ruled for all likely items of expenditure and receipts, with pages for summarizing and balancing up the totals at the end of the year, help

materially to lessen a task which to some may seem irksome, until they learn how interesting it is to know what their fowls have really done in the twelve months.

System Needed.—To be of real use, such accounts must be kept systematically, all purchases regularly jotted down, any extra labour employed on the fowls' account or hire of land duly debited, and a fair percentage of interest charged on the capital invested in appliances and stock, together with at least ten per cent. for depreciation on the appliances. Against this must be placed the value of eggs laid, crediting those used for home consumption at the current market rate, and all sales of birds dead or alive. When a complete stocktaking has been carried out at the end of each year, care being taken not to overvalue the birds (remember that stock in their second year, with exceptions for exhibition purposes, are nearing the end of their period of profit), and the value of food in hand has been estimated, then the comparison can fairly be made between the debit and credit accounts. Given proper keeping and feeding, with no extravagant first expenditure in appliances or stock, and without rent or labour charged against them, there should be little trouble in making poultry pay, and it is for this reason we advocate the keeping of a few fowls by every one who has a corner of a garden which can be devoted to them.

A Question Answered.—This statement at once opens up a far wider question—one that we are asked week in week out as editors of a poultry paper. It is this:

“ If a few fowls will pay under such conditions, why cannot I, who want an open-air life, take up poultry-farming and do on a large scale what you have said can be made to pay in a small way ? ” Too often such inquiries come from persons altogether unacquainted with the most elementary principles of poultry-keeping, and still less aware of the seven-days-a-week incessant work connected with poultry-farming, especially in the early months of the breeding and rearing season, when weather conditions are none too pleasant. The capital also available usually averages from £100 to £200, and from this the inquirer expects 100 per cent. return in income at once ! If it were not that the searchers for such an El Dorado to invest in obviously believe that such returns are possible, we should think that they were joking ; as it is, we and our experts try to learn all that we can of their age, health, aptitude for the work, and other necessary details, and our usual advice runs on these lines :—

If the applicant is an employee and has not kept fowls, we suggest his going in for them on as large a scale as his conditions will permit and the claims of his regular duties allow without neglect. He thus retains the sheet-anchor of his salary, whilst serving an apprenticeship to poultry-keeping which will show him its pitfalls, and prove whether he has that aptitude for live stock which goes far to win success. Two or three years' experience in this way, coupled with visits to poultry farms on all opportunities, will teach such

a one the possibilities of poultry farming on a larger scale, and he is then usually in a position to make his own decision.

Another class of inquirer is the person who has failed at everything else, and whose despairing friends propose to set him up as a poultry-farmer, apparently oblivious of the fact that the successful men and women in the poultry industry of to-day have achieved their position by energy and abilities that would have carried them far in other walks of life. For "the failure at all else" there is just one chance, and it is this: if he will go and *work* for twelve months on a poultry farm, the regular routine and hard but healthy outdoor life may make a man of him. If it does, at the end of his year's training he can qualify for a paid position on some similar poultry establishment, and with a year or two's further experience, to test his "sticking" powers, may then perchance be qualified to start on his own account.

The third class of would-be poultry-farmer, and one for whom there are as fair prospects of success as in other walks of life, is the man or woman (for ladies are pre-eminently successful as poultry-keepers) with a fair amount of capital who can afford to go as pupil and work hard on a good poultry-farm until he or she becomes thoroughly *au fait* with the subject. This done, the choice must be made as to whether the utility or exhibition side of poultry-keeping is to be taken up; to a large extent this will be governed by the training and liking of the individual. The choice

made, not more than half of the capital available, we think, should be invested in stock, houses, and appliances, for making a name and securing business in either the utility or exhibition side of poultry-keeping take time as well as skill. The reserve is necessary to tide over three or four years of waiting, while sales are gradually becoming equal to expenditure, and at last show a fair profit. It is for lack of this reserve that so many concerns have foundered, and often, too, when prospects have just begun to brighten.

Although all too often poultry-farming does not pay, many instances will occur to readers of the poultry-papers in which, thanks to skill and ability, it evidently pays well ; and what one person has done it is not impossible for another to achieve also.

In utility poultry-farming, conspicuous success has rewarded those breeders who have paid attention to the development of laying strains, and whose achievements in laying competitions here and abroad have yielded them both a good advertisement, and at the same time secured them practically "fancy" prices for their stock and sittings of eggs, besides a ready market at other seasons for their products at ordinary rates. One of the most prominent and successful utility poultry-farmers of to-day, blessed with a wife as skilled in poultry as himself, worked up to his present position from keeping a few fowls behind his place of business. As the profits from these grew, the time came when the business could be given up and the poultry made the main object

instead, with a result far exceeding earlier expectations.

Similar instances could be mentioned as regards the exhibition side of poultry-farming; but here, if some of the results appear more tempting, so perhaps the skill and ability necessary are greater. Competition is far keener, and the knowledge required in mating and breeding is of the highest. If this be recognized, the "fancy" side of poultry-keeping undoubtedly offers much of interest, and also not a little excitement if exhibiting is taken up. Profits will depend upon ability to make and maintain a good name for high-class stock, and to do this success in exhibiting is practically a necessity, backed by a regular system of advertising, so as to keep the yard and its successes constantly before buyers at home and abroad.

Co-operation.

Where there are a number of poultry-keepers in a district, much help can be derived from forming a co-operative society for the collection and marketing of eggs and poultry, the purchase of feeding stuffs in bulk, and their retail to members at wholesale prices. A conspicuous example of the assistance rendered to poultry-keepers in this way is furnished by the Framlingham (Suffolk) Egg Collecting Depot, which, founded in 1904 with 114 members and a turnover of £5,050, had in 1912 developed to 643 members and sales of £29,058. The eggs are collected

daily and brought to a central depot, where they are "candled" for freshness, and graded for size and colour before being dispatched the same day to market. The success of the society has led to a large increase in poultry-keeping in the district ; better prices have been obtained for the eggs, and cheaper and better feeding-stuffs secured by the members, together with substantial bonuses at the end of each year. Similar societies have been started in other parts of the country, and their growth will do much to help the business side of poultry-keeping in country districts where marketing in small quantities is always a difficulty.

Selling Produce.

The breeder of purely fancy poultry, when fairly successful as an exhibitor, can usually sell his stock through advertisements in *The Feathered World*, or other live-stock journals, as well as by personal sales made at shows, and by entering surplus birds at reasonable prices in "selling" or even "open" classes. The mismarked fowls or wasters from fanciers' yards are generally sold off at killing price or reserved for home consumption. Advertising regularly and attractively is for the fancier perhaps the most certain means of attaining successful sales. The utility poultry-breeder, whilst advertising in season, when sittings of eggs are being purchased and young stock is being sought for, will need other channels for his output of eggs and chickens. For these, failing

a co-operative society such as described, the best possible market is a direct one built up by canvassing either personally or by circular within easy delivery, or if locality debars this, by the wider means of the parcel post. The middleman's profit is thus saved, and a thoroughly satisfied customer, taking a couple of chickens and a dozen or two of eggs weekly, often becomes a producer's best traveller, through recommendations to friends, who become customers in turn. Where favourably situated on the outskirts of towns, quite a business is done in this way by some poultry-keepers, but the essentials for success are uniform good quality and unfailing regularity of supply, summer and winter—a test of good poultry management.

Failing this method, arrangements can be arrived at with a shopkeeper of standing in the nearest town, the particular requirements of whose trade must be studied, or else the birds be consigned further afield to dealers in big cities. Whatever be the method adopted, the ordinary business precaution should be taken of securing satisfactory references or else cash with order. Of recent years a series of heartless frauds have been perpetrated by rogues who advertise for eggs and poultry, or answer advertisements, and who, after receiving and selling large quantities, decamp as soon as demands for cash or police inquiries become too insistent, and start afresh elsewhere under fresh aliases.

Poultry-keepers need to be on their guard against such losses. For transactions such as the purchase or

sale of stock or appliances advertised, the deposit system of *The Feathered World* offers an effectual safeguard at a cost of but sixpence in the pound.

Insurance.

Insurances of poultry against burglary, fire, floods, and for live stock in transit can now be effected in connection with Lloyds' through some of the specialist clubs or *The Feathered World*, and are certainly worth consideration. The special risk of fire, where lamps are used in incubators and brooders, is always present, apart from the ordinary chances connected with wooden buildings. A wise man, therefore, will guard against fire as well as risks of robbery of his stock at home, or their loss or injury in transit, if likely to be above the value of the five shillings allowed as the maximum compensation by the railway companies.

Chapter XIII.

SHOWS AND SHOWING.

SOONER or later in these days, when almost every village has its poultry-show, the poultry-keeper who has good stock of a pure breed will be bitten with the desire to pit his birds in competition against those of other people. The desire is a good one, for whilst we are not advocates for breeding poultry for fancy points without any thought of their utility qualities, we know that shows have an enormous educational value, and have been the chief recruiting agency for poultry-keeping.

Poultry-exhibiting on a large scale in the open classes of our chief exhibitions has now become almost a profession in itself, calling for expert knowledge and skill of a high order, but as a stepping-stone to this there are restricted classes at many shows—either “local,” “novice,” or “amateur”—at which the beginner may try his ’prentice hand. A visit to one of these, and, better still, an entry or two of his best birds thereat, will teach him more than any book can do as to their comparative merit, and as to the necessity for training and properly preparing his birds for show

In these days of keen competition it is rarely possible to pick a fowl up out of the yard, put it into a hamper or box, and dispatch it to the show, and then find "first" ticketed on its pen. Instead, to show a fowl successfully it must be *prepared and trained*. If of a light colour it must always be kept out of the strong sunlight to prevent its plumage becoming faded or weathered, or, if white, getting tanned.

Again, except under the most favourable conditions it will want *washing* before showing—an art that requires practice; and all fowls need some preliminary *training* in the show-pen, so as to stand to the best advantage when judged, and not fly wildly about the pens and so ruin their prospects. For birds to acquire this confidence in the show-pen they must be confined separately in roomy, well-littered exhibition-pens, and visited frequently. If coaxed and fed with a few tit-bits, they soon learn to show themselves off properly, and can with the aid of a short cane or judging stick be gently stroked and urged to adopt correct positions.

Many of the darker and hard-feathered breeds will want little preparation for show beyond this preliminary pen-training, attention to their legs, feet, and head-points, as described later, and a rub down (the way of the feathers) with the hand or a silk handkerchief to bring out the natural gloss of the plumage. For this reason birds should only be washed when necessary, as the process tends to destroy this natural gloss on the feathers.

The intending exhibitor will find in the hints

which follow—taken from the “Answers to Queries” columns of *The Feathered World*—some practical help in the preparing of birds for exhibition.

Preparing for Show.

If the would-be exhibitor has any grass land, he should place the birds selected in small covered pens separately on the grass, and move them about on to a fresh piece of grass every two or three days. They should be kept separated, as they would damage each other's plumage if run together. Give them good sound wheat and white Canadian peas, not mixed, on alternate nights; short stout oats and wheat for the morning feed; a feed of bread and milk on alternate days at noon, and on other days a little animal food—be sparing of this with the large-combed breeds—for about ten days or a fortnight prior to the show.

Washing Legs and Feet.—Before fowls are dispatched to the show, their legs and feet should be well scrubbed with hot water and Sunlight soap. Soak the legs in hot water for a few minutes, and then scrub them with the soap applied with an ordinary nail-brush. Should any dirt still adhere to the inside of the scales, take your penknife, gently insert the point under the edge of the scales, and scrape out the dirt; give them another scrubbing, and wipe dry. Then take a piece of rough flannel and polish them well by vigorous rubbing up and down the leg. The face, comb and wattles should be thoroughly washed with

hot water, using a sponge for the purpose. The plumage of the bird, no matter what colour it is, can be greatly improved by sponging well with lukewarm water, then drying with a rough Turkish towel, and polishing with a silk handkerchief to put on the final touches to the toilet.

Washing the Plumage.—If light-plumaged birds have become so soiled as to need washing, they should be treated three or four days before the show. The usual method is as follows. Having cleaned the legs in the manner advised above, procure a large bowl, a medium-sized bath half full of water heated to about 103° Fahr., a large bath sponge, and a bar of Sunlight soap. Hold the bird in the water with just its head out for five minutes, so that the feathers may become properly soaked to the roots. Then take the soap and rub it well over all the feathers, and afterwards, with your hand, rub the soap well into the feathers. Do not be afraid to rub the feathers hard, for now that they are properly soaked they cannot be injured by rubbing. Next, immerse the bird once more in the water, and with the sponge wash out all soap. If you have done your work properly, all trace of dirt will have been removed.

The bird is now ready for bath No. 2, which should contain the same quantity of water, but heated to only about 96 degrees. Place the bird in this water with its head out, and with your hand ruffle the feathers backwards so that the water may get right to the roots of the feathers. Having done this, allow the

bird to stand up in the bath, and give it a good sponging with the water, to remove all trace of soap.

You will then require another bath of water, not more than from 85 to 90 degrees, or just new-milk warm. In this water, if the bird be white, just sufficient blue should be dissolved to give the water a blue tint. The bird should be held in this as in the other water, and well sponged while under water. Then allow it to stand up, and with the sponge absorb as much of the water from its feathers as you can before drying with a soft towel. Having dried the bird as far as possible with the towel, place it in an exhibition basket about three feet away from a bright fire, the lining of the basket facing the fire being let down, but that at the back kept up to exclude draughts. For the first hour watch the bird, and do not allow it to stand too long in one position, as it should be frequently turned round so as to dry evenly all over.

It is best to wash the bird in the evening three or four days previous to the show. If the day after washing is fine and sunny, place the bird in an exhibition pen outdoors on the grass for an hour, then the feathers will web out much better. Before dispatching the bird to the show, sponge the face, comb, and wattles well with warm water, and just prior to putting it in the basket, apply a little glycerine and cucumber to them. For light-coloured birds that have been washed, you cannot use anything better than clean straw chaff for them to scratch in.

Fanciers of yellow-legged varieties use every effort

to get the leg-colour as sound and brilliant as possible. All yellow-legged varieties intended for exhibition should have their legs well soaked in warm water once or twice a week, a soft nail-brush and soap being used to get off all the dirt. When the legs have been dried, as much dirt as possible should be got from under the scales, and a little sweet oil rubbed well in, finishing off with a piece of rough flannel. Common washing-soda is a well-known agency for bringing out the leg-colour, and in the case of dusky-legged birds the addition of a small handful to the water is certainly very helpful in this respect. Some shades of yellow, however, respond to it more readily than others; the result, therefore, is rather disappointing in some cases. If a tablespoonful of powdered borax is added to the water in place of the soda, all shades are greatly improved by it. This ingredient is both harmless and effective.

Treatment of Lobes.—The lobes of exhibition stock, if blistered, can be cured by sponging them each night with cold water for a few minutes, afterwards wiping them dry and applying zinc ointment, and on the top of this dusting some violet powder. Do this for about ten days or a fortnight. Give the bird a sprinkling of sulphur in its soft food, all the green food it cares to eat, and a little iron tonic in its drinking water. Keep the bird in a dark pen, not allowing it outside under any consideration, for exposure to the weather and weakness of constitution cause the blisters.

Similar treatment is advised to obtain nice white

lobes. Keep the birds in darkened pens, and every day apply a small quantity of zinc ointment to the lobes, afterwards dusting with violet powder. A fortnight or three week of this treatment is necessary to get the lobes in good condition.

Head-points play such an important part in exhibition that in some of the Mediterranean breeds it is sometimes necessary to accelerate the growth of the pullets' combs. To do this, the pullets should be placed in a warm covered run, and be very snugly housed at nights. Do not let them out in the cold early morning, but feed them betimes, and let out when the morning is "well aired." The birds require plenty of soft food and meat. Start off with a mash of warm biscuit meal and oatmeal, and at noon give a good feed of meat or fresh-cut bone, a little meat, raw, if perfectly fresh; if not, cooked will be all the better. Give them an evening feed of white Canadian peas one night and maize another. A little sulphate of citrate of iron may be used in the drinking water, and see that the birds have green food. In the evening bathe the comb with very warm water for a few minutes; then dry and well work in with your finger and thumb a little salad oil or vaseline; daily manipulation of this kind will improve circulation in the comb and render it better nourished. Before bathing the comb, put a towel or large silk handkerchief right round the bird to save the plumage from becoming broken and ruffled. A shady pen will help to bring out the whiteness of the lobe and increase the lustre

of the plumage. Do not allow the warm water to fall on the lobes, or it may cause blisters.

Some combs, otherwise good, have the blemish of an indentation like a thumb mark. This can be lessened by applying olive oil and working the comb with the finger and thumb, using gentle pressure from the opposite side. This must be done daily for twenty minutes to half an hour each time.

The falling over of the cockscombs of large-combed breeds, such as Minorcas, Leghorns, and others, which of course should be erect, may be caused by feeding with too much animal food, by keeping in badly ventilated roosting quarters, or by breeding from a pullet strain. If animal food has been used to any extent, discontinue it for a while, and feed very sparingly with soft food. Let the staple food be grain or white peas. See that the sleeping quarters are well ventilated. In obstinate cases it may be necessary to fix a comb guard (Fig. 70), an appliance procurable from most venders of fanciers' requisites.

The heat of an exhibition room will often cause a cockerel's comb to fall over more or less to one side. That experienced breeder, Mr. L. C. Verrey, in his capital book "Leghorns," gives the following advice in regard to this trouble:—

"Some tonic pills and keeping the bird in a cool dry place will often stiffen it again; but sometimes these simple remedies fail in their effect, and recourse has to be had to a shaped piece of wire called a cradle or comb guard, similar to illustration on page 232.

These are very simple to make. Take a piece of galvanized wire eighteen inches long, bend it in the middle, then shape it like the model. After it is bent into form, bind it tightly with worsted. The *modus operandi* for adjusting on the bird's head is as follows. It will require some one to hold the cockerel firmly ; then place the cradle round the comb, tie the ends (c) with thread, and the operation is complete. Care should be taken that the cradle does not pinch anywhere. It will be necessary to tie the bird's legs



Fig. 70.—Guard to cure the falling over of a cockscomb.

loosely together with a piece of tape, and the best place to tie them is just below the spurs ; this is, of course, to prevent him scratching the cradle off. As a rule, the leg hobble can be dispensed with after two or three days, as the cockerel soon becomes accustomed to his headgear."

Baskets.—Proper linen-lined exhibition baskets can now be] bought cheaply, and are best, as ensuring greater comfort for the birds, safer transit, and less trouble to overworked show officials. They can be

had single, or divided into compartments for sending several birds, but to the small exhibitor we recommend the single or double size.

Procedure.—Of course, when deciding on the show to exhibit at, it will first be necessary to see if a class is provided for your particular variety, and this you can find out by sending for a schedule to the secretary, or, in cases where the classification is advertised in full, by looking for it in *The Feathered World*, or other fancy papers. In the schedule is an entry form, which you should carefully fill up and post with the fee to arrive in good time before the date for closing entries. When entering at a show, a price has usually to be fixed for the exhibit; so, if the bird be one that it is desirable to retain for breeding purposes, a prohibitive figure should be placed upon it. If not, fix a fair value, and if a sale is effected, the amount will be remitted to you, less the show's commission.

The show secretary will in due course send you proper dispatch labels, bearing your class and pen number. On one side will be the address of the show, and on the other, blanks for your name and address, to be filled in for the return journey.

At the Show.—If on visiting the show the bird is found cardless or low down, compare it with the other exhibits in the same class, and so try to find out the points in which it failed. If the chance offers, politely ask the judge to give his reason for his decision; in the majority of cases he will be only too pleased to do so, and perhaps to give some valuable hints in

addition. There is a freemasonry amongst fanciers, and, failing the judge, there are generally others present who, if asked, will point out the differences in the birds. In this respect the show reports in the better-class papers will also be of help. An exhibitor, if wise, will never lose his temper, but get the valuable reputation of being a good loser as well as a good winner, for though his exhibits may not get justice that day, if they have merit their turn will come; and, as a result of a successful win or two, on advertising his surplus stock or eggs he will obtain better sales and prices than he got when altogether unknown.

Most judges have their own idea as to what constitutes the chief points in a variety, despite fixed standards and points, and these individual tastes it is well to study. If it is learned that a certain judge goes for size rather than type, always send your big birds to him to judge. Another perhaps is great on type or colour or head-points. Studying these little points will make all the difference in the results.

After the Show.—When birds return from a show, it is always well to keep them penned up separately for a day, in case they may have contracted cold or roup or other diseases at a show. It is not often that sick birds are seen at a show, but even experienced fanciers, when sending off a bird, cannot always detect the first stage of illness which the cold journey and too often a cold hall may aggravate. Still, it is a wise rule never to send a bird to a show which is not in the pink of condition.



The **WRONG WAY** to take a bird from the show cage.



The **RIGHT WAY** to take a bird from the show cage.

Fig. 71.

Handling Birds.

So much damage is done to valuable exhibition birds by careless and unskilful handling at shows, and even at home, by inexperienced people, that the helpful diagrams (Figs. 71 and 72) and a note by Mr. Drevenstadt of the *Reliable Poultry Journal* (U.S.A),



How to Hold the bird after removing from the show cage.

Fig. 72.

as to how to hold and examine a bird, are well worth their space. "The right way to take a bird out of the cage is to gently place the right hand on the shoulder, stroking the back and grasping the left wing firmly with the right hand. Then pull the bird out head foremost. After the bird has been removed from the cage, use the left hand to hold the right wing close to the body. Now slip the right hand underneath

the body, and grasp both legs firmly in the right hand, using the forefinger to separate the thighs. With the left hand the different sections can then be spread, plumed, and explored. Begin with comb and head, and follow with neck, back, tail, and wings. Breast and body can be examined more closely by placing the bird on its sides."



Chapter XIV.

EXHIBITING, MARKETING, PACKING, AND PRESERVING EGGS.

AT most shows, classes are provided for eggs, usually six or twelve for white, and a similar number for tinted or brown eggs, and one class for duck eggs. The prizes are given for uniformity of size, shape, and colour, bloom and cleanliness, combined, of course, with freshness and (as one egg is usually opened to test the quality) good colour of yolks.

In selecting eggs for exhibition, it is better to pick out a dish of good medium-sized ones of even shape and colour than to include a few abnormally large eggs that will by contrast make the remainder of the plateful look smaller than they really are. Double-yolked eggs should not be included, nor duck's eggs mixed with hen's eggs. Clean nests and surroundings are a great help to getting a good sample of eggs either for sale or exhibition, as eggs, however fresh, which have to be damped to remove dirt, never look so well as those which retain their natural bloom.

Whilst on the subject of eggs, it may be well to advise the systematic grading of all eggs for sale,

as to both size and colour. This is a lesson which we can well learn from our foreign competitors, and there is a further application of it which, if taken to heart by utility poultry-keepers, may help to secure them better prices. It is, to breed from the hens which lay the larger eggs, and so gradually increase the average size of the eggs gathered. In May 1913 we published in *The Feathered World* a photograph of an ingenious egg barometer devised by Mr. Verney Carter, which exhibited at a glance the relative values of sizes in eggs by means of six wire baskets of like dimensions placed side by side. In these were put batches of sixty eggs respectively, scaled to weigh 13, 14, 15, 16, 17, and 18 lbs. per 120; the difference in bulk was even more remarkable than is the contrast between the eggs of these weights when placed in egg-cups side by side. To breed for larger eggs, of course, the trap-nest is necessary, so as to identify exactly which hen lays a particular egg.

Packing Eggs.

Packing eggs is an art which a good many people do not understand. Too often they appear to think that the box of eggs they are consigning to the tender mercies of either the postal or railway authorities will be treated as gently in transit as it has been whilst being taken to the dispatch office. Alas! could they but follow its fortunes they would, in too many instances, be sadly disillusioned; so it is necessary to

pack as securely and tightly as possible. Great helps to successful packing are the egg boxes with divisions, made in different sizes in both wood and cardboard, and procurable pretty cheaply from many firms. Even these will not, however, guarantee safe arrival; for where eggs do not actually fit each compartment, packing material must be added to keep them firm.

One large poultry farmer, who sends away many hundreds of sittings annually, showed us his method recently. He used ordinary cardboard egg-boxes with deep lids, divided in twelve compartments by a movable framework. One box having been opened, the framework was removed, a handful of chaff spread over the bottom, the framework replaced thereon, and the eggs put into twelve divisions. More chaff was then pressed firmly in all round the eggs, and a thick layer left on top to form a protecting cushion before the lid was put on and securely tied with string. To test the efficiency of this packing, the box was hurled across the room; on reopening it every egg was found intact. By this means the trouble of broken eggs *en route* to purchasers had been done away with.

At other establishments we have seen light wooden boxes used, and the eggs either packed in bran, sawdust, cork-dust, or chaff, or even in hay or paper; but, whatever the system adopted, eggs must be packed tightly, so as not to move or rattle, though the packing material should have a certain amount of resilience or spring so as to lessen shocks. For

this reason, in most of the best wooden boxes used for dispatching eggs in numbers, the egg is either gripped in an expanding wire frame or nestles in a felt pocket with thick felt cushions at top and bottom.

A capital lesson in the art of packing and grading eggs can be learnt from the cases of foreign eggs as

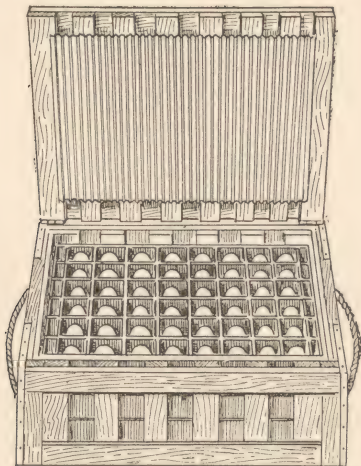


Fig. 73.—Box for dispatching a sitting of eggs.

they are opened at grocers' shops—the best quality, French and Danish eggs especially, being excellent in these respects.

A label red-lettered "Eggs with Care" should be pasted on the box lid, and a label with address and stamps securely attached to the side, so that this and not the box gets the post marking if sent by

post. If the box is sent by rail, the label is safer if pasted down on the cover.

Sending Eggs Abroad.—It may fall to the lot of some reader to have to dispatch a valuable sitting of eggs abroad. In such a case it is, of course, essential that the eggs should be *new laid*, and that they be packed with more than ordinary care. Take a small but strong hamper with a good sound lid; bed the sides and bottom of this thickly with nice soft hay, and into it put the eggs after doing each up separately, first in paper and then in a wisp of hay. Place the eggs sideways; between each layer put another lot of hay, and fill the basket up with more hay firmly pressed down into all corners, so that the hamper is as full as it can be made. Cord it securely, and label it "Valuable Eggs with Care," and send enclosed an instruction that after unpacking the eggs must remain quiet for forty-eight hours before being put under a hen or in an incubator.

Testing Eggs.—We have already alluded to the necessity for grading eggs for size and colour, so that a pleasing uniformity can be obtained. If large quantities are handled, many will need to be wiped with a damp cloth to remove dirt, and all should be "candled" or held before a proper egg-testing lamp in a dark room to ensure the exclusion of such objectionable variations from the new-laid eggs as are known as "spots," "rots," "cracks," "stales," broken yolks, partially developed germs (only too frequent when broody hens are left about the nest-

boxes), and other market disqualifications. However good the average of a consignment may be, the presence of a few such eggs depreciates its value enormously, and may, indeed, mean the loss of a customer entirely.

The shell of an egg being porous, evaporation of its liquid contents (except when preserved by a coating preparation) is always going on, and the size of the air chamber increases in proportion to age. By comparing the space occupied by this in a stale egg when "candled" with that in a genuine "new-laid," an observer will soon learn to detect the difference in age.

Eggs of peculiar shape and size, or with blood spots inside, are usually the result of giving spices or over-stimulating food. The offending hen's diet must be of a more sparing character, and her drinking water made slightly saline by a pinch or two of Epsom salts. Soft-shelled eggs may be due (1) to the hens being overfat; if so, they should be fed sparingly for a time on hard corn only, oats preferably, raked into their litter, and be given Epsom salts in their drinking water. (2) Possibly lack of lime wherewith to form the shells. If this be the case, supply lime in the shape of old mortar broken up small or crushed oyster shell, or a small piece of unslaked lime about as large as a hazel nut can be given in a pint and a half of drinking water.

Preserving Eggs.

It will be well to preface this section by saying that the best eggs for this purpose are those laid by hens which have not a cock running with them. The reason for this is obvious—an infertilized egg will keep good for days; a fertile egg has from the moment when it is formed a germ within it liable to development, which, if started and then suspended, quickly leads to decay. Except for breeding purposes, or perhaps to assist in bringing pullets on to lay, the presence of a male bird in utility pens of poultry is as well dispensed with, especially when the time for preserving surplus eggs arrives.

One of the safest and easiest methods of preserving eggs is by means of water-glass (silicate of soda), which can be obtained in tins from most poultry appliance makers, chemists, and grocers. Full directions are given with it as to mixing and the quantity of water needed; and the only precaution necessary to mention is that perfectly clean barrels for large quantities and glazed earthenware jars for smaller lots are suitable vessels for holding the eggs. Metal buckets should not be used. Lids to the receptacles will lessen evaporation of the water. As the store of eggs increases by daily additions, care must be taken that the eggs are well covered by the liquid, more of this being added if necessary. Provided that perfectly fresh eggs are put in, at the end of six months they will come out hardly discernible

from the best "new-laid," be far better than the majority of eggs bought in shops, and will both boil (if pricked first) without cracking and poach well. The advantage, too, of being able thus to put away a few daily without trouble is a great one. Every year larger quantities are being stored for winter use in this way, and it is this which has done so much to keep up the price of eggs during the summer months of recent years.

Another method much used in Ireland is to "butter" the eggs. A small piece of butter is placed in the hand, and each egg well rubbed over with the melted butter, so as to coat it thoroughly. This is done very quickly, and eggs thus "buttered" will keep well for six months. After buttering, they must be placed in baskets, not boxes (the butter turns rancid if in tin or wooden boxes), and be stored in a cool, dry place.

There are other methods with preparations of lime and water, or storing in strong brine; but, compared with the water-glass method, they all have disadvantages, and so need not be cited.

Chapter XV.

USEFUL ODDS AND ENDS.

UNDER this title we may with advantage group a few helpful hints which, whilst not directly coming under any of our previous chapter headings, may yet be of service to beginners in poultry-keeping.

Bread Crusts.—These, which in some households are plentiful, can be used to advantage, and reduce the food bill, if steeped in skimmed milk for an hour or two, and then given to the chicks. There is no better food for promoting size and pushing forward the chicks than bread and milk. If short of milk, scald the crusts with boiling water, allow to stand until cool, squeeze out the water, and then pour over the bread just as much milk as can be spared. Still another way is to put the bread in the oven to dry until thoroughly crisp, and crush it to a powder with a rolling-pin or flatiron. Having done this, add the bread powder or crumbs to the meals used for morning feed of the stock. By drying thus thoroughly, the starchy nature of the bread, which is the only injurious property it contains, is abstracted. On some large poultry farms quantities of bread collected

from hotels and restaurants and thus treated are used. The crusts must, of course, be perfectly dry, and not sour-smelling or musty.

Broody Hens.—Where it is desirable to cure a hen of broodiness, so as to bring her on to lay again, a good plan is to place her in a small crate or wire exhibition pen with a slatted bottom, so that she

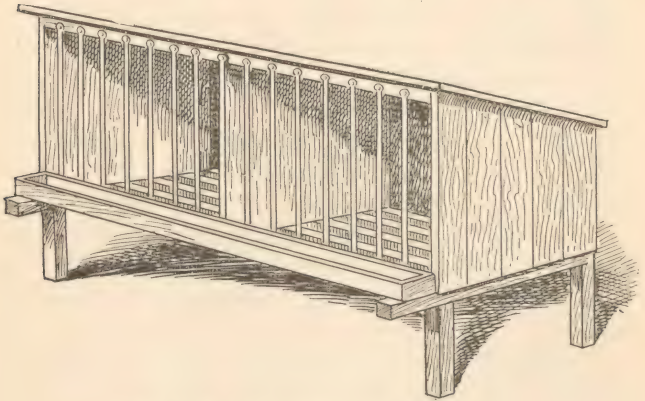


Fig. 74.—Coop for curing broody hens.

has nothing substantial to sit upon. Put the hen in the run with the other birds, and feed her very sparingly indeed, but give her plenty of drinking water. She should not be fed until some time after the other birds have been fed, but should be placed near them, so as to see them feeding. After she has been kept in the above structure for a couple of days all signs of broodiness will usually have disappeared,

and the bird will be none the worse for the treatment.

Cock-crowing.—In urban districts a male bird addicted to crowing at night, and also by day, may become an intolerable annoyance to neighbours, and its owner be called upon at law to abate the nuisance. To avoid this, if it is desired to retain the bird, hang a board above the perch, so that when the cock rises to crow he hits his head. If this is not sufficiently effectual, visit the roost the last thing at night, take the offender off the perch, tie his legs firmly together, lay him on his side in a shallow basket, and leave him there till the fowls are let out in the morning. It may be added that where fowls are kept in confined runs for eggs only, and no chickens are raised, a male bird is not only not needed, but also an unnecessary expense to feed.

Crooked Toe.—The crooked toe of a growing chicken can be straightened by cutting out a piece of stout leather the shape of the foot and toes, and stitching the leather round the toes like a sandal; this will keep the toe in its proper position. It can be worn several weeks, but should the toes swell, remove the sandal for a time, and then replace it.

Day-old Chicks (Dispatch of).—Suitable ventilated boxes for the dispatch of day-old chicks can be obtained from most of the appliance makers. These boxes, felt or flannel-lined, should have a little hay or straw chaff added at the bottom. The chicks

should be dispatched at night, so as to reach their destination the following morning, and should, as a rule, be sent off as early as possible after they are dry. They will then be more likely to do well on arrival, for they can do without food until the second day after hatching. Unless a broody hen is sent with the chicks, purchasers should have a quiet, suitable mother or an artificial rearer in readiness. Chicks are best placed under a strange hen after dark. If delayed on the journey, they are often very thirsty on arrival, and must be given milk and water sparingly.

Dubbing.—In the case of many of the large-combed breeds it is sometimes necessary to remove the comb, if frost-bitten or otherwise damaged, and to secure greater fertility in the breeding-pen on the part of the male bird. The operation of dubbing is held by some magistrates to be illegal, and prosecutions, especially as regards the dubbing of game fowls, have been upheld. It is, however, practised by most poultry-keepers as a necessity under certain conditions, and as such, we think, is perfectly justifiable. As regards game, it has become as much a fashion to dub these as it is to dock fox terriers' tails, but with greater reason, for the removal of comb and wattles from such pugnacious fowls gives less grip to an opponent, and thus may save life in a chance encounter.

The correct age to dub game is between four and six months old, and if possible, this operation

should be carried out during the warm weather, when the trimmed parts will heal much quicker. Game birds, as a rule, bleed very little; so after removing the comb, wattles, etc., the head should be held under the cold-water tap for a few seconds, care being taken not to suffocate the bird—and in most cases this will entirely stop the bleeding. Proper curved scissors are sold by appliance makers for the purpose, with directions for use. A little Friar's balsam put on the cuts will stop the bleeding.

Egg-eating.—There are many causes which may lead to this annoying and disgusting habit. The chief of them is the accidental breaking of an egg; for when once fowls have tasted the contents, they will proceed to break eggs on their own account and eat them until a stop is put to the habit—in some cases not altogether an easy matter. Very often the want of proper shell-forming material is the cause of an egg breaking in the first instance, and the natural desire for lime will lead the birds to eat its shell as well as the contents. Many different remedies are suggested; most of them have been found fairly successful, so we give two or three, so that if the first tried does not effect a complete cure you may try another.

The first and simplest plan is simply to make the nest as dark as possible, so that the fowls may be unable to see the eggs after they are laid—for then there is no fear of them being eaten—and to place plenty of soft hay in the nest, so that the egg cannot

be broken by accident, and will sink into the hay if pecked at.

Another good way is to take an ordinary egg, remove the contents, and fill the shell with a mixture of ordinary mustard and pepper mixed into a paste. Though the fowl may manage to dispose of the first, fill another, and you will find it will soon have had sufficient, and leave the eggs alone.

Another plan is to fill an egg with ammonia or with bitter aloes; it will need a hardened egg-eater to tackle such dainties. One of our experts when visiting some yards was surprised to see a number of pot eggs about the scratching-shed, and was told that one of the birds had commenced to eat eggs as fast as they were laid. Being given pot ones to practise on, she had grown so disgusted with the endeavour to smash them and get at the contents that she gave up the habit of egg-eating altogether. In America also the same dodge is adopted, but instead of pot eggs they simply use as many ordinary egg-shells as possible, obtainable from most bakers or confectioners. The shells are placed in the runs just as obtained, and after the hens have broken or devoured these, as they generally do during the first day, others should be supplied, until the fowls leave them alone altogether. Still another preventive is to provide the birds with a nest with a false bottom, so that as soon as the hen lays her egg disappears out of reach. Egg-eating should be carefully watched for, as the habit soon spreads in a flock; and a bad offender not

quickly cured, unless specially valuable, should be destroyed. Supply the birds with plenty of sharp flint and shell grit, as well as of green food ; and if they are confined, give them as much exercise and occupation as possible in their scratching-shed by burying their corn deep in the litter.

Feather-plucking.—This nasty habit is contracted by some fowls, and is often a difficult one to cure. In most cases it is due to the birds being kept in a small place, and not having sufficient exercise ; in others, to want of sufficient animal and green food. In the first place, provide the birds with more employment of the kind just mentioned. Also tie cabbage or other vegetable leaves to the end of a string, and hang them up in the run about two and a half feet from the ground, or just high enough to make the birds jump up to reach them. When feeding the birds on soft food, add to the food a small quantity of ordinary table salt every alternate day, and on the other days a little flowers of sulphur.

Another cause of plucking is the presence of insects. Where such is the case, dust the birds with insect powder, and add flowers of sulphur to the dust-bath. Rank offenders, in which the habit has become formed, if valuable for breeding purposes, may be made harmless by means of a gag, which prevents them from gripping a feather tightly enough to do mischief ; and the same end is aimed at, doubtless, by the advice sometimes given to pare slightly one of

the mandibles at the tip, taking care not to cut to the quick. Where birds of no special value contract the habit, they are best isolated and got rid of as soon as possible.

Green Bones.—Reference to these has been made in earlier chapters. When cut up, fresh from the butcher, they are about the best of egg producers. Contrary to what many poultry-keepers think, it is not necessary to cook the bones before they are cut up or before they are given to the fowls to eat, for the best plan is to purchase sufficient from the butcher to last not more than two or three days, and to cut these up and give them as fresh as possible. The bones from the table may, of course, be used as well, though they are not so nourishing as the fresh ones. Proper machines for cutting bones are advertised, and, where any number of fowls are kept, save an immense amount of labour, besides doing the work better. It should be remembered that the virtue of fresh-cut bone lies in its freshness. It is a mistake to keep it for long. Immediately the bone is cut, spread it on shallow wire gauze trays to cool, and afterwards mix it up with a little fine middlings, or that very fine biscuit meal dust which is offered for sale for chickens. It will keep a few days longer if treated in this way. As to the quantity of cut bone to feed to the fowls, a good deal depends on whether the birds are laying or not. Merely for the purposes of health, half an ounce each bird per day is about right. A little more than this can be given in bad weather, or to get a few early eggs for setting,

and to get a profuse supply of winter eggs when the birds are in full lay an ounce or more each will often be used. The great thing with this, as with other foods, is to keep the birds with an appetite for it. If they begin to look indifferently at it, and are not at all eager for it, give less next time, or miss a day or two. As a general rule, the birds adjust the quantity to their own requirements, for it is obvious that one bird laying six eggs in a week will want more of this class of food than one that lays only two eggs per week, and the best layers will be the keenest after it. Should a continued tendency to diarrhoea be noticed with these good layers, their supply should be limited to the amount they can consume without their droppings becoming watery.

Insects.—Where these are present, pyrethrum powder should be thoroughly dusted into the roots of the feathers all over the birds. The houses should be well limewashed with carbolic limewash, to which some kerosene has been added. In the scratching-shed put plenty of dry ashes, and mix these with sulphur for the birds to dust themselves in, and in this manner they will be able to keep themselves clear of lice and other pests. Chickens cannot thrive if infected with insects, and as regards older stock it is specially important to note this during the moulting season, for birds cannot moult well if troubled by such pests. During the moult, if the weather is dry and warm, give them a little flowers of sulphur in their soft food; also a little boiled linseed, adding both linseed and

liquid to the meal. Dress the perches with pure paraffin, which will kill all fleas, red mites and their eggs. Repeat the dressing twice or thrice in the course of a month.

Marking Poultry.—The necessity for some method

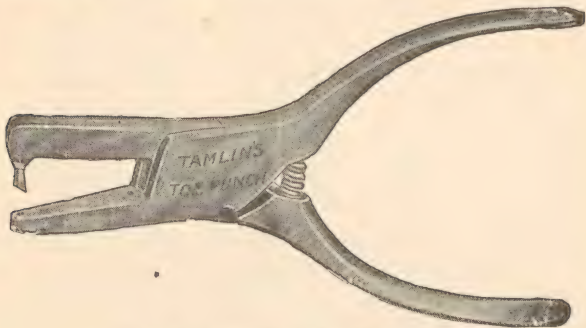


Fig. 75.—Tamlin's Toe Punch.

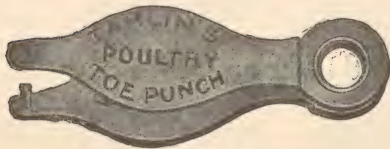


Fig. 76.—Small Toe Punch.

of identifying chickens and poultry is obvious to every careful poultry-keeper. There are many ways of doing this, of which the following are the most simple. 1. *Toe Punching*, which consists of making a small round hole in the web of the feet with a toe punch (Figs. 75, 76), procurable from any appliance maker. By

varying the web punched, using the left or right foot, punching both webs or alternately on either foot,

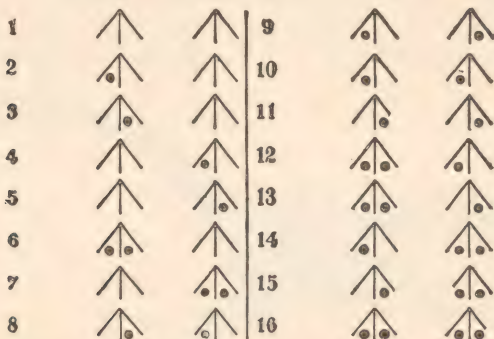


Fig. 77.—Possible variations in toe-punching.

and so on, a large number of changes can be made and a chart kept to distinguish the various matings, etc.

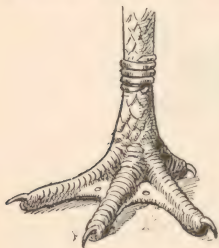


Fig. 78.—Chicken's leg, showing spiral leg-ring and holes punched in webs of foot, for identification.

The punching should be done soon after the chicken is hatched.

2. *Markings, or Pedigree Rings.*

These rings can be purchased from poultry appliance makers in several forms, both in metal and spiral celluloid. After the first ringing in the chicken stage, these rings (except the Conference rings and some expanding rings) require alteration at a month old, and again on the

fowl reaching full growth.

Manure.—Where large numbers of fowls are kept, and the droppings are collected from beneath the perches and in the runs, a considerable quantity of a very useful fertilizer will be accumulated. This should be carefully stored under cover in an open shed, so as to dry and be thus easily mixed with dry earth or fine ashes, in the proportion of about two parts of the latter to one part of the droppings, if for use in the garden or as a dressing on grass. The heap should be turned over occasionally, to ensure drying and thorough mixing. In the neighbourhood of market gardens, and especially of tomato-growers, poultry manure is usually saleable. One large poultry-farmer of our acquaintance sells all collected from the dropping-boards beneath his perches to a kid glove tanning firm; but for this purpose it has to be collected with care and be free from dirt or grit. Farmers are gradually awakening to its value as a dressing for grass land and other crops—the effect of running fowls on a grass field in numbers being evident in the heavy dense crop of grass in the following season.

Spices and Condiments.—These should never be given to breeding stock to encourage laying, and, indeed, fowls are generally better without them, as too often they act as irritants and set up disease if given persistently. A more nourishing but not fattening diet is a teaspoonful of hemp seed per bird occasionally, and this is better than artificial stimulants in bad weather.

Shipping Poultry Abroad.—Coops for sending poultry

abroad can be obtained from appliance makers or easily be made at home. See that the birds have plenty of room and are provided with a supply of corn (oats are the best) for the journey; also send some surplus peat-moss dust in a bag as litter if the voyage will be a long one. The male bird is better placed in a separate compartment of the coop, which, for convenience of handling, should not exceed six feet in length. Do not forget to provide drinking tins; make the roof and

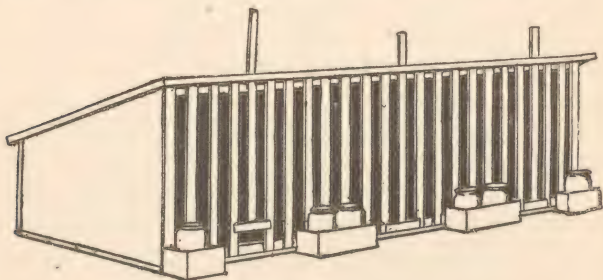


Fig. 79.—Shipping Pen.

sides of the coop weather-proof; and let the front be of wooden slats with a sliding one in the centre of each compartment, and retaining cross rails for the litter in front, or—as used by one of our largest exporters—partly of slats, with a door made of a wooden frame and wire netting. Several shipping and forwarding agents now undertake the dispatch of poultry, and will readily give details on application. (Fig. 79.)

Spurs.—It is sometimes necessary to reduce the sharp spurs of a cock owing to the injury they cause

his hens. A surgeon recently sent us the following note as to the operation : “ Cut off the hard insensitive *tip* of the spur, the bird being held firmly ; then use a file to smooth the surface, and, if necessary, pull over the stump afterwards a piece of tight-fitting rubber tubing.” It is hardly necessary to add that a bird thus treated should not be shown, as it runs a risk of disqualification.

Tainted Ground.—There are several ways of improving land which has become tainted by disease. One is to spread powdered lime evenly over the surface—if an earth run—allow it to lie until a shower of rain has fallen, and then have it dug in. In a month or six weeks’ time the run will be fit for occupation. Another method is to water the run thoroughly with an ordinary watering-can, using four ounces of sulphuric acid to each gallon of water in the case of an earth run and half the quantity in a grass run. The earth run thus treated can be dug up about two weeks after the application ; the grass run should be left vacant for a month. Even when untainted by disease, earth runs are always the better for a dressing, as described, and a renewal of the surface by being thoroughly dug over periodically ; a quick-growing crop taken off them is a grand sweetener. Grass runs also need attention, and if while they are tenanted the grass therein is kept short by mowing, it will wear far better and become less foul. If possible, all grass runs should have a rest of from two to three months each year, when the grass can be either kept grazed

by sheep or horses (horned cattle are a nuisance where wire-netting is present); or a crop of hay can be taken off so as to make use of the manure dropped. Where this course is not feasible, the division of the run into two, and allowing the birds alternate weeks in each half, is useful for keeping the grass fresh.



Chapter XVI.

DISEASES AND AILMENTS OF POULTRY.

WITHIN the limits of a chapter it is impossible to deal exhaustively with all the ailments met with in poultry ; but our paper's columns of answers to correspondents, from which the following notes are taken, are always open for further inquiries and ready to help in fresh emergencies.

Some of the diseases peculiar to young stock—gapes and cramp, for instance—have already been dealt with in the chapter on chicken-rearing, and should be looked for there.

Apoplexy.—This is due to some pressure on the brain, or to the rupture of a small blood-vessel in the brain. The patient should be placed in a darkened pen, and every three hours be given two tablespoonfuls of warm water, to which has been added as much Epsom salts as can be heaped on a sixpence, and twenty drops of tincture of iron. Give no food for twenty-four hours, and then a little crust of bread soaked in cold water.

Broken Legs.—Broken legs are not uncommon

among poultry. If assistance can be rendered the bird at once, the shanks rarely show the point of fracture afterwards. The shank should be gently placed in its normal position, slightly stretched by holding the big toe firmly. Let an attendant bind up the shank with bandages, soaked in starch or white of an egg, or a creamy mixture made with Plaster of Paris and water; in either case the bandage will set hard, and so render unnecessary the more clumsy method of using splints. The leg is generally sound again in about three weeks, after which the bandage can be taken off. Do not bind too tightly in the first instance, as the leg may swell, and this should be allowed for.

Bronchitis.—The signs are a dry, catchy cough, quickened breathing, and a whistling sound when breathing, and the cause usually a sudden change in the weather. Hold the bird's head over the steam from a boiling kettle, and give four or five drops of ipecacuanha wine every three hours. It is a good plan to add a little terebene to the boiling water. A couple of teaspoonfuls of glycerine or sweet oil, warm, should be given every night for a few days and a little roup powder be added to the drinking water. Afterwards, a few capsules of quinine and chemical food should be administered. The bird should be kept in a moderately warm room. See also PNEUMONIA.

Bumble Foot.—An enlargement of the ball of the foot, the swelling frequently extending up between the toes. Caused by rough, stony land and high perches. Bumble foot is prevalent where fowls do

much flying up and down from high walls. Five-toed varieties are also very subject to it. Hold the ailing foot in hot water for ten minutes twice daily for a week, and after each bathing paint with tincture of iodine. If, after a week's treatment, the swelling diminishes, continue the treatment; if not, the foot must be lanced and the matter carefully dissected out; after which pour in a few drops of Condyl's fluid and bind the wound up. In two days' time reopen it and, if free from matter, anoint it with zinc ointment and allow it to heal. Keep the patient on a thick bed of soft hay, and give it sulphur daily in its soft food. In the case of corns on the ball of the foot, pare the hard substance down as far as possible with a sharp knife, taking care not to cut deep enough to cause bleeding. The foot should afterwards be painted with tincture of iodine each night till the swelling has subsided.

Cholera.—This highly contagious disease is the most fatal of all maladies to which poultry are heir. The symptoms are great thirst and diarrhoea, the discharge being generally greenish at first, later frothy, thin, and white. The bird becomes huddled up and drowsy, and remains in one place and position for an hour together. The comb as a rule is very dark, especially at the tips. Death usually takes place within thirty-six or forty-eight hours. The patient should at once be isolated and placed in a pen away from the others, and be well dosed with warm sweet or olive oil, two teaspoonfuls every three or four hours. As soon as it is able to take warm food, milk and bread

should be given. and milk for drink instead of water. This disease is usually the result of feeding on tainted food and unsound grain, or of allowing the birds to drink impure water, such as the drainings from manure heaps.

Colds.—This is a very common complaint, especially in winter, and very contagious, often going right through the yards. The chief symptom is a little sneezing and a watery discharge from the nostrils, or a little frothiness at the corner of the eye. When this is noticed, the face, eyes, and nostrils should be sponged with hot water, to which a tablespoonful of vinegar has been added. To the drinking water add a few drops of essence of camphor. This will keep the cold in check and prevent it from spreading until a good roup powder, which is the most easily administered remedy, can be obtained for the drinking water. For severe cases, see ROUP.

Comb Disease.—Comb rot, canker, and ulceration of comb are a few of the names applied to a yellow patch that appears on the comb. In large-combed breeds, such as Minorcas and Leghorns, a scab forms, and if this be removed the comb underneath will be found to be yellow, sometimes a festering sore. The comb should be well washed with hot water, in which a piece of carbolic soap has been dissolved, then wiped dry. Some good reliable ointment sold by most specialists should be well rubbed into the sores each night, but until this is obtained, use equal parts of vaseline and sulphur. All birds with comb disease

should have daily in their food as much sulphur as will lie on a sixpenny piece. In the large-combed breeds the disease makes its appearance at the base of the comb just where it is inclined to fall over, and such birds should have a comb guard put on, when treatment is commenced, or the comb may go over for good. (See also WHITE COMB.)

Cropbound.—When birds become cropbound, through picking up substances which they are unable to digest, and the ordinary remedy of washing out with warm water does not alleviate the trouble, the best plan is to open their crops—not at all a difficult operation if an interest is taken in it. Pluck a few feathers from the skin covering the crop, make one incision with a sharp pair of scissors in the top skin of the same, and another in the outer casing of the crop. The cut should not measure more than half an inch to an inch and a half long, but be just sufficient to admit the handle of a small teaspoon, with which the contents should be ladled out. After removing as much of the substance as possible, partly fill the crop with warm water, to which has been added a small quantity of Condyl's fluid; then work the crop about with your fingers, and afterwards empty out the water and the remaining contents. Rinse out again, and finally leave a little water in the crop. Then sew up the two skins of the same, taking care to sew the inner edges together first separately, then the outer edges. After you have finished the operation, place the bird in a basket by itself and keep it there for six or eight hours, after

which it may have its first feed, which should consist of bread soaked in milk and squeezed out fairly dry. Give the bird only about one tablespoonful for the first meal. If this passes away successfully in two or three hours, the bird may have a larger quantity for its next meal.

Crop (Enlarged).—Termed in the fancy, “soft crop”; usually due to improper feeding and the food becoming sour in the crop. Take the bird by the legs, head downwards, in the left hand, and with the right squeeze the crop to empty out the contents. After squeezing out as much as possible, use a syringe to give the bird some warm water mixed with a few drops of Condyl’s fluid, or pour the warm water down the throat with the aid of a small teaspoon, although the former is better. Having filled the crop with warm water, allow the bird to remain quiet for a few minutes, and then squeeze out the contents as before. Having done this, fill the crop again with warm water and Condyl’s fluid and leave the bird for two or three hours, by which time the contents should have passed away in the ordinary course, but if not, repeat the operation. The bird should be fed very sparingly on a little scalded biscuit meal that has been allowed to stand a few minutes, and freed of water. The bird should have this morning and night for a about a week. Do not allow it to drink much water, and even what it is allowed must have a few drops of Condyl’s fluid added to it.

Diarrhœa.—The symptoms are thin, watery drop-

pings, due to sudden changes in diet or to sudden cold or wet weather. The most simple remedy is to give rice boiled in milk, and sprinkled with a little powdered chalk, and to add a little chalk to the milk which should be given instead of water to drink. In severe cases, administer five to eight drops of chlorodyne every three or four hours. As a rule, the first remedy is all that is necessary. Diarrhœa may be the result of any disease affecting the digestive organs, or may be caused by unsuitable food or by change of temperature. If the diarrhœa is supposed to be due to any specific disease, adopt the treatment suitable for that disease. In most cases, a teaspoonful of sweet oil every four hours and feeding with crusts of bread scalded with boiling milk are the most suitable. Diarrhœa may simply be liver trouble, or possibly be enteric; still, both of these require the same treatment—that is, a diet of bread and milk, to which should be added some good liver powder, which can also be put in the drinking water. (See also CHOLERA.)

Diphtheria. See ROUP.

Down Behind.—This protrusion at the vent is usually caused by passing a large egg and by lack of proper treatment at the time. Bathe the vent first with hot water, then with strong cold tea, and push the part gently back into its proper position. Tie the bird's legs together, and place her in a hamper on a bed of hay, and let her remain there for twenty-four hours in order to keep the bowel back in position,

When she lays again watch her carefully, and if she appears to have a difficulty in passing the egg, bathe the vent with hot water, dry it thoroughly, and inject a little warm sweet oil. This will enable her to pass the egg without trouble. (See also EGG-BOUND.)

Egg-bound.—If a hen when not broody is seen to go to nest, and remain there for a long time without laying, she is probably egg-bound. If, on examination by careful handling, this is found to be the case, take steps to relieve the sufferer at once. Fill a large bowl up with water as hot as the finger can bear, and hold the vent of the hen in this water for about two minutes. Then dry the vent, oil the forefinger well, and insert it inside the vent, and after tracing the egg in the passage, which will be about an inch up, pass the finger carefully round between it and the skin. Withdraw the finger and inject a little warm sweet oil. Place the hen in a basket on a good bed of hay, and within half an hour she should pass the egg without further trouble. In cases where the egg passage is found protruding and containing the egg, its opening should be found, and then by very gentle pressure from behind the egg be gradually worked out. This done, treat the protruding part as advised under DOWN BEHIND.

Frost-bitten Combs and Wattles.—Frost-bitten combs and wattles should be rubbed with the following mixture or ointment : Lard, 2 oz. ; kerosene, 3 oz. ; quinine, 1 oz. Melt these all together and mix well. This will

cool into an ointment. A little of this should be rubbed well into the comb and wattles. As a preventive, a little vaseline, about 5 drachms, with half a drachm of spirit of turpentine and a drachm of glycerine added, should be applied to the comb and wattles the last thing at night when the weather is very severe. When the wattles become swollen and hard, they should be lanced at the extreme base and bathed with hot water, to which some Condyl's fluid has been added, then wiped dry and well vaselined.

Going Light (Consumption).—The symptoms are a bright red comb, coupled with a good appetite, yet the birds daily get poorer in condition. In its early stages this disease is practically curable, as the bird's death can be averted for a year or two; but there is no known cure for an aggravated case. Over-shown birds frequently develop consumption, but prompt and thorough treatment will generally stave off the evil day. Hens that have been neglected during sitting and while rearing chickens will contract this disease. Prize birds are very liable to it as the result of inbreeding. Try generous feeding—oatmeal porridge, bread and milk, biscuit meal scalded with milk, a fair supply of cooked fat meat, a few whole groats or White Canadian peas, and now and then a little hemp seed, are all useful; also "tit-bits" from the house, and chemical food in the drinking water. Morning and night give half a teaspoonful each of chemical food and cod-liver oil. Special pills for the disease can be obtained from poultry medicine venders.

Lameness.—Fowls on free ranges are sometimes lamed by a thorn or a piece of glass in the foot, which may cause severe inflammation. In such cases bathe the leg night and morning in water as hot as the hand can bear, dissolve a piece of soap in the water, and hold the leg in for twenty minutes, keeping the water from cooling. Three or four days of this treatment will suffice to bring the matter to a head, when it should be lanced to let out the offending matter. Keep the bird in a pen by itself, and let it sleep on some soft hay. Do not allow it on any account to perch until the sore is well again. When the sore is lanced, bathe it well afterwards with hot water and soap; then dry and apply a little carbolized vaseline.

Leg Weakness.—This is a malady which often attacks cockerels as they approach full growth, especially long-limbed birds and those which have been forced on rapidly. Mr. Lewis Wright advises leaving off all condiments and (for a time) animal food, and giving the following pill: Strychnine, 1 grain; citrate of iron, 1 drachm; phosphate of lime, 1 drachm; quinine di-sulphate, 15 grains. Make into thirty pills, and give one twice to three times a day. Feed well, and give a good supply of green food and grit. See also RHEUMATISM and LAMENESS.

Liver, Inflammation of.—The symptoms are: Great thirst, thin, frothy yellow droppings, gradual wasting, and sharp breast bone. The patients are very sleepy, and squat about with drooping wings; the abdomen and end of the breast, if touched, give the bird great

pain. It relieves such birds to hold them over a bucket of steaming hot water. To ease the pain, give five drops of chlorodyne every four hours, until the birds are somewhat better. From the commencement give liver pills and the special feeding prescribed under LIVER DISEASE.

Liver Disease.—Dark coloured, blue, or purple combs, with black tip, are certain signs of liver trouble. Other signs are: Food remaining in the crop, causing the bird to appear crop-bound. Lameness, especially of the right leg; failing appetite. One of the first early symptoms of liver trouble is the occasional mustard-like appearance of the droppings, which are fluid and frothy instead of being firm and hard. *Treatment*: Give a course of liver pills and two teaspoonfuls of sweet oil morning and night. Birds with liver trouble should not have any grain until convalescent. Feed entirely on oatmeal porridge and milk morning and night; or, for a change, on cooked vegetables, such as turnip and cabbage, mixed with a little lean gravy. At noon a little cooked lean meat and abundance of green food should be given. Tender grass, lettuce, cress, radish tops, or tender cabbage leaves are all suitable, but tough fibrous cabbage leaves are not. Allow the birds plenty of drinking water, and as much exercise as they care to take. Good sharp grit is an absolute necessity.

Lobes and Wattles (Damaged).—If the wattles of a bird get much torn, the torn places should be at once stitched with silk thread, and vaseline be applied to

them each night until they are properly healed. If the white lobes are damaged, bathe these in cold water with a soft sponge for a few minutes, wipe them thoroughly dry, and apply a little zinc ointment, which should be well rubbed into the scars and then dusted with starch powder or violet powder. Do this each night, and keep the bird in a darkened pen.

Pip.—This was the term used by our forefathers whenever a bird appeared out of sorts, and has become quite a by-word, as a person out-of-sorts or disagreeable is described as “having the pip.” To be correct, there is no such disease as “the pip.” The word “pip” is identified with the horny tip at the end of the fowl’s tongue, caused by the nostrils being blocked, with the result that the bird has to breathe with the mouth open. This constant exposure to the air causes the tip of the tongue to become hard and dry, almost like a piece of horn or like the point of a quill pen. *Treatment:* Give first of all Epsom salts for three days, wash out the nostrils with warm water, and on the fourth day commence with roup powder daily in the drinking water. Should the tip of the tongue have become very hard and thick before being noticed, it is advisable to remove the tip with the aid of the thumb-nail, and having done this, to apply a little honey and borax to the sore, morning and night till healed. Resort to this operation in extreme cases only, as nature in the ordinary way effects its own cure.

Pneumonia (Inflammation of Lungs).—The symptoms

are : cough, similar to bronchitis ; gasping or panting for breath ; very rapid breathing with neck stretched out. *Cause* : Exposure to wet ; sudden change in weather, etc. *Treatment* : Keep the bird in a warm room near a fire, protected from any draughts. Give every two hours two drops of B.P. tincture of aconite and eight to ten grains nitrate of potash in two tablespoonfuls of warm water, or three drops of ipecacuanha wine in two teaspoonfuls of warm water every hour until relief is obtained. Feed on warm bread and milk.

Quill-bound Feathers.—There may be several reasons for birds being quill-bound, but the chief is undoubtedly constitutional weakness. If a bird is quill-bound in this way, it should have a tonic and be well fed on good nourishing food, such as bread and milk for breakfast, a little animal food at noon, and grain at night. If the quill-binding is confined to the larger feathers, such as those of the tail and wing, these can easily be relieved by simply running the nails of the thumb and forefinger along each side of the quill. This will at once liberate the feathers. Another good plan is to wash the bird in warm water, as this also helps to unsheathe the feathers.

Rheumatism.—This sometimes affects birds, and in cases of loss of power in the legs, a simple remedy which gives considerable relief is to hold the legs up to the hocks in hot water in which a small handful of washing-soda has been dissolved, keeping the water as hot as the hand can bear. At the end of a few

minutes rub some good embrocation well into the hock joints. It will be best to do this at night-time.

A few leg-weak pills (see LEG WEAKNESS) help such cases considerably.

Roup.—Colds and rattle in the throat are symptoms of this disease, which rapidly spreads in a flock. The ailing birds must be kept in a warm, dry pen by themselves and fed on plenty of nourishing food, roup powder being added to their drinking water. Examine their mouths to see whether they contain any cheesy growths. If they do, these should be gently scratched off with a blunt stick, and the resulting sores be dusted with dry roup powder. If the birds have the white growths in their mouths, they are suffering from *diphtheritic roup*, a highly infectious disease, and a terrible scourge to any poultry yard. To cure this, give a good brand of roup powder in the birds' drinking water daily, and add half a teaspoonful of sulphur to the birds' soft food each morning. The ulcerations in the mouth and throat should be scratched off with the point of a knife, and the resulting sores be dusted with the dry roup powder, which will immediately stop the growths. If the eyes are affected, they should be bathed each night with warm water to which a dose of roup powder has been added, and again in the morning, if the eye should be closed up. All the house should be limewashed with hot lime, and the runs be disinfected. The rest of the stock should be carefully

watched, and as a preventive roup powder be given in their drinking water. In attending fowls affected by this or any other disease, the poultry-keeper should be careful to wash his hands in some proper disinfectant before handling healthy birds, their food or food vessels. (See also COLD.)

Scaly Leg.—This unsightly disease is caused by a parasite which burrows under the scales of the leg, and is very contagious. It is often introduced into a yard by purchased broody hens, which should always be examined before being used. *Symptoms*: The bird's legs become covered with what looks like a chalky growth with considerable swelling and distension of the scales. *Treatment*: The legs should be dipped in paraffin up to the hocks, but not beyond, or sores may be caused when the oil touches the skin. Repeat this two days later, and on the fourth day wash the legs with plenty of hot water and soap, and carefully remove as much of the accumulated matter as is possible without injuring the scales. Rinse well and dry, and then apply a little sweet oil or vaseline. Repeat the treatment after an interval if the bird is not cured. It should be isolated also, so as not to infect the other fowls.

Skin Disease.—A useful remedy in skin maladies is to give the bird abundance of green food and a liberal pinch of sulphur in the soft food each day. Apply a little zinc ointment to any lumps or excrescences. The great thing is the feeding and the sulphur. It also helps considerably to give two teaspoonfuls of

chemical food in each half-pint of the bird's drinking water.

Slipped Wing.—The flight feathers should not be pulled. Procure a piece of tape and tie it rather loosely round the wing near the shoulder or body. Let one of the loose ends of the tape be taken inside the flights, and bring it up outside the flights to the original knot. This will, when tied, form a sling to keep the flights from hanging down. Of course, there is the danger of the flights slipping out of the sling. To prevent this, thread a needle with stout thread, and pass it right through the quill of the last flight feather; then pass it back again through both tapes, quill and all, and tie in a knot. This sling should be left on for a month or six weeks, after which time the wing should be cured. As the tape sinks under the feathers, very little of it is seen.

Small-pox.—Fowls with warts on their faces show one of the most marked symptoms of variola, or small-pox, which is highly contagious, and is sometimes accompanied by roup. Give all the birds roup powder daily in their drinking water. Those with the wart-like growths should have the spots or warts scratched off, and the resulting sores immediately dusted with a small pinch of roup powder. Add in their morning soft food a little sulphur, one small teaspoonful to every three birds, and give this for a week or ten days. Should any of them have a cheesy growth in mouth or throat, remove it and dust the places with the dry roup powder. The house should be thor-

oughly limewashed with hot lime, and the run dug over and disinfected with izal.

Sore Vent. — This complaint is also known as cloacitis. Any bird so affected must be kept by itself, and the vent washed once a day with hot water in which a piece of ordinary soap has been dissolved. Then the vent should be dried and a little sulphur ointment applied. The ointment is made of two parts carbolized vaseline and black sulphur. Besides rubbing this on the outside, smear a little on a linen rag, which is inserted inside the vent, gently worked round, and removed. The bird should have half a small teaspoonful of flowers of sulphur in the morning soft food for a week, by which time it ought to be greatly improved, although cloacitis is often difficult to cure. Mr. Lewis Wright says that the disease begins with a hen, probably from some form of septic inflammation, and is propagated by copulation. On detection of a case the male bird and rest of the flock should be examined. Great care should be taken to disinfect the hands properly before touching anything after treating such cases, and all rags used should be burnt.

Vertigo.—A symptom of this is the bird staggering backwards or turning round and round, sometimes throwing its head right back. The cause is some pressure on the brain, the result of a too free use of stimulating foods. *Treatment:* Place the bird in a darkened pen, dose with Epsom salts morning and night, and feed very sparingly on crusts of bread

soaked in cold water, squeeze, and cover with a little milk. Feed once a day only. Sudden attacks can be cured in some cases by holding the bird's head under the cold water tap for a few minutes and keeping the patient very quiet.

White Comb.—Highly contagious, this disease is caused by parasitic influence, and is difficult to cure. The *symptoms* are that the comb appears to have had flour dusted over it; closer examination will prove that this appearance is due to little scales. Unless taken in hand properly, it will spread to head and neck, and many feathers may fall out. Birds so suffering should have abundance of green food daily, and half the quantity of their morning soft food should consist of boiled vegetables, such as turnips and cabbage, and to which is added a sprinkling of sulphur each morning for a fortnight. Put in their drinking water a little iron tonic. Some of the reliable ointments advertised for the disease should be well rubbed on the comb upon alternate nights. This disease is usually brought on either by dirt and neglect or by the want of green food; a good supply of green food is of the greatest importance.

Worms in Fowls.—Where many birds in a run are infested with worms, either there must be something wrong in their feeding, or the ground is tainted. In the latter case, remove the birds to another pen, and give the surface of the runs a covering of powdered unslaked lime, and let this so remain for a few days. Then turn the surface over—in the case of an earth

run—and let the run remain unoccupied for another week ; then turn the birds in. As a cure for worms, give adult fowls from ten to twelve drops of spirits of turpentine in a teaspoonful of sweet oil an hour before breakfast and the last thing at night, for four or five days. Chicks from three to six months old require eight or nine drops. During this period the birds should be kept in a pen by themselves and the droppings swept up, removed, and destroyed twice or thrice a day. In a week a cure should be effected.

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